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Data in Brief

Data Article

Data on metals biomonitoring in the body of schoolchildren in the vicinity of a heavily industrialized site

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ABSTRACT

This data is obtained from analyzing the concentration of metals include Al, Co, Cr, Cu, Fe, Mo, Pb, and Zn in the urine of schoolchildren in Asalouyeh city in vicinity to a heavily industrialized site and comparison with a reference city. The significance of sex groups on urine metal level was evaluated through this data. The urinary content of metals was measured by inductively coupled plasma atomic emission spectroscopy (ICP-OES). Statistical analyze of data were done by Mann–Whitney test. The herein presented date could beneficial for health assessment of gas and petrochemical companies.

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Specifications Table

Subject area	*Environmental science*
More specific subject area	*Environmental epidemiology, toxicology*
Type of data	*Table*
How data was acquired	*ICP-OES (SPECTRO, Spectro arcos, Germany)*
Data format	*Analyzed*
Experimental factors	*Urine samples were collected from schoolchild and were frozen until analysis. After defrosting and pretreatment, the metals level of the samples was analyzed.*
Experimental features	*Measurement of 8 metals (Al, Co, Cr, Cu, Fe, Mo, Pb, and Zn) concentration in schoolchildren.*
Data source location	*Asalouyeh and Saadabad city in Bushehr province, Iran.*
Data accessibility	*Data is presented with the article*

Value of the data

- Data is useful to assess the gas and petrochemical sites effects on sensitive populations such as schoolchildren close them.
- Data reflect the human biomonitoring results as a tool to assess human exposure to environmental pollution.
- Data show the urine metal properties could serve as a bioindicator in human biomonitoring.

1. Data

The concentration levels of urinary metal summarized in Tables 1 and 2. Table 1 shows the concentration of metal measured in two areas. Detection limits (LOD) of each metal is also shown in Table 1. Table 2 presents data in sex groups in polluted area. All metal levels are presented as ppb unit.

2. Experimental design, materials and methods

2.1. Study groups and field study

The field study was conducted in April 2015. The participants were 6–12 year old children in Asalouyeh city (as polluted area) and Saadabad city (as reference area). Both areas are located in Bushehr province, Iran with the same population and same elementary schoolchildren population that attending to a boys school or a girls school. In each area 20 cases randomly selected between who had been living in the area for at least 3 consecutive years. Finally 40 samples were collected for this study (20 boys and 20 girls). A questionnaire was prepared containing socio-demographic characteristics, health status and medication and tobacco smoking (active and passive). The proposal was approved by Bushehr University of medical science.

2.2. Urine sample and chemical analysis

A spot urine sample was collected using a 100 ml sterile polystyrene container. The samples were frozen at $-20\,°C$ then, before analyzing samples were defrosted at $4\,°C$, homogenized, filtered and placed in polyethylene tubes pre-treated with dilute nitric acid and rinsed with distilled water. The metals of Al, Co, Cr, Cu, Fe, Mo, Pb, and Zn were quantified in all samples by using ICP-OES [1,2].