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Exposure of the Portuguese adult population to arsenic: preliminary results of a human biomonitoring study

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Abstract

BACKGROUND AND AIM: Although arsenic is an element naturally present in the environment, it is highly toxic in its inorganic forms. Exposure can occur through consumption of drinking water and contaminated food. Long-term exposure was shown to be associated with negative health outcomes. Nevertheless, data on the Portuguese population's exposure to arsenic is scarce. As such, the aim of this work was to assess the exposure to Arsenic in the Portuguese population using samples collected in the study "Exposure of the Portuguese Population to Environmental Chemicals: a study nested in INSEF 2015" (INSEF-ExpoQuim), developed as an aligned study of the European Human Biomonitoring Initiative (HBM4EU). **METHODS:** INSEF-ExpoQuim was an epidemiologic study nested in INSEF 2015 including 270 participants aged 28-39 years, living in Portugal for more than 12 months and able to follow an interview in Portuguese. Fieldwork was developed between June 2019 and February 2020. First morning urine samples were collected along with data on socio-demographic characteristics, living conditions and residential history, habits/lifestyle, nutrition, health, occupation and substance specific information covering nearly all exposure pathways. Procedures followed the guidelines of the HBM4EU project. Total urinary arsenic is currently being determined by inductively coupled plasma mass spectrometry. **RESULTS:** Preliminary results for 38 samples yielded total urinary arsenic concentrations ranging from 11 to 462 µg/L with an average of 86 ± 94 µg/L. After completion of the determination of the urinary arsenic levels for all the samples a complete analysis of the data will be performed. **CONCLUSIONS:** Results from this study will contribute to the knowledge on the Portuguese population's exposure to arsenic and may support the development and implementation of policy measures aimed at minimizing exposure to this chemical and improving the health of the population. **KEYWORDS:** Heavy metals, Biomarkers of exposure, Chemical exposures, Environmental epidemiology, Exposure assessment, Exposures

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