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Arsenic status of cardiovascular tissues from cardiac patients

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Non cancer effects also affecting the health of persons due to the arsenic exposure. Cardiovascular illness has been well documented, but little it is known on arsenic in the cardiovascular tissues. The aim of this work was to study the status of arsenic in cardiovascular tissues from an arsenic exposure heart patients' group of Antofagasta Chile, regarding a group of none arsenic exposure patients. Total arsenic concentrations were measured in 215 cardiovascular pieces tissues of the arsenic exposure group and 25 pieces tissues of the control group. Each patient was asked to complete a self-administered questionnaire. The determinations of total As were performed by means of HG – AAS, HG – AFS and ICP – MS, while the speciation analysis was made applying HPLC – ICP – MS. Auricle, saphenous veins, mammary arteries, and pooled fat samples from the arsenic exposure group gave concentrations of arsenic within the following ranges: 0.79 – 13.9; 0.28 – 13.6; 0.25 – 10.7; and 0.12 – 7.70 µg / g dry weight, which were greatest, than of the control group. The clustering of the total arsenic concentrations with demographic – case variables influenced by medical geology factors and conditional case – variables they allowed to infer that the first they are more important as discriminating against of the disease cardiovascular risk, and the arsenic speciation reveals that the principal "arsenic target tissues" were the auricles and the mammary arteries. The knowledge of the total arsenic and the prevalence of As3+ in the auricle of the arsenic exposure group patients, could contribute to understand the arsenic impact on cardiovascular illnesses in countries where arsenic it is an important environmental stressor.

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