EVALUATION OF ARSENIC LEVELS IN BIOLOGICAL SAMPLES OF ARSENIC EXPOSED CANCER PATIENTS THROUGH CONTAMINATED DRINKING WATER WITH RELATED TO NON-EXPOSED CANCEROUS PATIENTS

Sham Kumar Wadhwa a,b, Mustafa Tüzen a, Tasneem Gul Kazi b

a Gaziosmanpaşa University, Faculty of Science and Arts, Chemistry Department, 60250 Tokat, Turkey
b Center of Excellence in Analytical Chemistry, University of Sindh, Jamshoro 76080, Pakistan

wadhwashamkumar@yahoo.com

A number of epidemiologic studies have been undertaken to identify potential risk factors for cancer, amongst which the association with arsenic has received considerable attention[1]. In present study biological samples (blood and scalp hair) of cancerous and non-cancerous subjects belonging to arsenic (As) exposed area of southern parts of Pakistan, were analysed for As contents. The drinking water of understudy area were contaminated with arsenic at 3–15 fold higher than permissible level. Both referents and patients were of same age group (ranged 30–65 years), socio-economic status, localities and dietary habits. For comparative purposes, the biological samples of matched cancerous patient, as non-exposed patients belong to big city (Hyderabad) who were used municipal treated water with low arsenic levels <10μg/L, were also collected.

The scalp hair sample was oxidized by 65% nitric acid: 30% hydrogen peroxide (2:1) ratio in microwave oven. All digests were analyzed for As concentration by electro thermal atomic absorption spectrometer. The results of this study showed that the average As concentration was higher in the blood and scalp hair of exposed and non-exposed cancer patients as compared to controls (p<0.01), while the exposed cancerous patients have 2–3 fold higher level of As in both biological samples as compared to non-exposed cancerous patients (p< 0.001). This study is compelling evidence in support of positive associations between arsenic contaminated water with different types of cancer risk. Analytical parameters and modifiers were optimized. Accuracy of the method was confirmed with certified reference materials.

REFERENCE


* Sham Kumar Wadhwa thanks to TUBITAK for scholarship support.