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## **ASSESSMENT OF HEAVY METAL LEVELS IN SERUM SAMPLES OF PROFESSIONALLY EXPOSED WORKERS**

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### **Introduction and aim:**

Today, it is well known that exposure to heavy metals can seriously affect human health, causing developmental problems, cancer, organ damage, autoimmune and other disorders. The concentration of a metal in biological media, blood and urine being the most important, can be used to assess exposure and risks to adverse effects. The primary goal of biomonitoring studies is to evaluate human exposure by comparing the measured concentrations of the toxic elements with those of control groups or with literature-based „background“ values.

This article provides an insight into the concentrations of different metals in serum of exposed group-miners and non exposed-control group in order to evaluate the risk assessment of professionally exposed population.

### **Methodology:**

The samples of serum were taken from a group of 30 professionally exposed workers- miners. Serum samples of the control group were taken from citizens of municipality, not directly exposed to these metals. The ICP-AES technique was used for analyzing the samples.

### **Results and discussion:**

Results are presented as mean values  $\pm$ SD. Obtained metal concentrations in mg/L, are as follows:

Exposed group:  $0.236 \pm 0.03$  (Mn);  $1.388 \pm 0.3$  (Zn);  $0.913 \pm 0.08$  (Cu) and  $0.066 \pm 0.05$  (Pb);

Control group:  $0.07 \pm 0.004$  (Mn);  $0.718 \pm 0.05$  (Zn);  $0.793 \pm 0.04$  (Cu) and  $<LD(Pb)$ ;

Concentrations of investigated metals were significantly higher in group of miners compared to control group.

### **Conclusion:**

Biological monitoring is a very useful way of evaluating exposure to toxic metals. The results also show the need for improvements in workplace ventilation and industrial hygiene practices. Although heavy metal poisoning can be clinically diagnosed and medically treated, the best option is to prevent heavy metal pollution and the subsequent human poisoning.