

# ANALYSIS OF METALS IN THE SERUM OF PROFESSIONALLY EXPOSED POPULATION OF BLOOD-DONORS FROM THE BUCHIM-RADOVISH MINE AND UNEXPOSED GENERAL POPULATION FROM THE MUNICIPALITY OF SH TIP

Kamcev N, Kamceva G, Vitlarova J, Panov Z, Janevik E, Kamceva M, Richter K

University "Goce Delčev", Faculty of Medical sciences, Štip, R. Macedonia  
Clinic hospital Štip



## AIM

To determine the concentration of heavy metals in the serum of professionally exposed blood donor population from Buchim-Radovish mine and the unexposed general population (control group) from Shtip. To estimate the potential difference of heavy metals concentration and their impact on the health of blood recipients.

## MATERIAL AND METHODS

The concentration of heavy metals (Mn, Cr, Zn, Cu, Pb, Ni, Co, Cd) was analyzed in the serum of 30 professionally exposed miners blood donors from active Buchim mine, located nearby the town of Radovish.

The control group comprised of 30 samples from the general population from Shtip, not directly exposed to heavy metals.

The research was conducted in the chemical-biochemical laboratory at the University "Goce Delchev" in Shtip, using the equipment ISP-AES, Liberty 110, Varian.

## RESULTS

Concentrations of Mn, Zn, Cu, Pb were significantly higher in the group of miners compared with the control group.

The concentration of Cu correlates significantly with the concentration of Zn. This result is in line with the known fact that Cd, Cu, Zn bond to metallothionein in vivo, while Mn does not.

Concentrations of Co and Cd were not significantly different between the analyzed groups, only Ni concentration is higher in the control group.

Average values of analyzed metals were higher in the exposed group than in control group as reported in several studies on miners and other professionally exposed workers.

## DISCUSSION AND CONCLUSION

Heavy metals have major impact of human health and environment. Strict legislation aiming to solve raising problems in this area gives vital importance to the monitoring of heavy metals. It is necessary to undertake further detailed analysis on the impact of higher concentrations of heavy metals in the blood of miners blood donors and on the health of blood recipients.

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