

# VoxSanguinis

The International Journal of Transfusion Medicine

Abstracts of the 21st Regional Congress of the ISBT, Europe  
Lisbon, Portugal

June 18-22, 2011

# Vox Sanguinis

International Journal of Blood Transfusion Medicine

Volume 101, Supplement 1, July 2011

Abstracts of the 21st Regional Congress of the ISBT, Europe  
Lisbon, Portugal

June 18–22, 2011

#### Disclaimer

This abstract book has been produced using author-supplied copy. Editing has been restricted to some corrections of spelling and style where appropriate. No responsibility is assumed for any claims, instructions, methods or drug dosages contained in the abstracts: it is recommended that these are verified independently.



WILEY-  
BLACKWELL

P-087

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 SHTIP

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

*University, Goce Delchev, Stip, Macedonia*

**Aims:** 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.

**Methods and materials:** 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 and discussion:** 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.

**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.

**Key words:** heavy metals, serum, blood donor population