

Predictive, Preventive and Personalized Medicine & Molecular Diagnostics

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Modulatory Effects of micronutrients on metal toxicity

There is growing evidence that micronutrient intake has a significant effect on the toxicity and carcinogenesis caused by various metals. In our study we examine the effect of micronutrient status (Zn, Ca, Fe and Se) on the toxicity of metals lead, mercury, and aluminium.

We have studied therapeutic potential of micronutrients selenium, zinc, calcium, iron against heavy metal alone and combination with chelating agents. We have chosen to separate the effect of micronutrients on toxic metals into three classes: interaction between essential micronutrients and toxic metals during uptake, binding, and excretion; influence of micronutrients on the metabolism of toxic metals; and effect of micronutrients on secondary toxic effects of metals. Based on data from mechanistic studies, the ability of micronutrients to modulate the toxicity of metals is indisputable. Micronutrients interact with toxic metals at several points in the body: absorption and excretion of toxic metals; transport of metals in the body; binding to target proteins; metabolism and sequestration of toxic metals; and finally, in secondary mechanisms of toxicity such as oxidative stress. Therefore, people eating a diet deficient in micronutrients will be prone to toxicity from metals.

Biography

Sangeeta Shukla is Vice Chancellor of Jiwaji University. She has wide experience of research in the field of Reproductive Biology, Biochemical Pharmacology and Environmental Toxicology. She has been awarded fellowship from Wellcome Trust, Indo-French Government Fellowship UK and many others. She has published 105 papers in SCI journals good Citation indices. She has also edited book and contributed chapters in books. In recognition of her efforts, she held international positions as Vice President for Asian Continent of International Centers for Trace Element Study for UNESCO, France including Council Member of 'ISTERH. She has completed ten Major Research Projects and supervised 18 Ph.D. theses and many dissertations of M.Phil and M.Sc. students.

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