

Toxic metals as a key factor in disease

This supplement summarizes lectures presented at the 12th MELISA[®] Study Group. The meeting was held in Prague, Czech Republic, on September 9–11, 2005, and attended by physicians and scientists from 20 different countries. The focus of the meeting was “*Toxic metals as a key factor in disease*”.

Hundreds of scientific studies link exposure to heavy metals with the development of various diseases of autoimmune and neurological nature, as well as certain cancers, in experimental systems and humans. Disputers claim that the mechanisms and scientific evidence are lacking. However, it is acknowledged that some individuals develop health problems when exposed to metals in the environment while others do not. Patch test has traditionally been used for the diagnosis of metal allergy.

During the 1980's, the Memory Lymphocyte ImmunoStimulation Assay (MELISA[®]) test, based on the so-called lymphocyte transformation test, was developed at Astra Pharmaceuticals in Sweden. The test diagnoses metal allergy by measuring the reaction of a patient's memory T-cells to various metal solutions in non-mitogenic, non-cytotoxic concentrations. The test is objective and semi-quantitative, showing if, and to what degree, the patient's immune system reacts to a suspected allergen.

With MELISA[®], it was finally possible to demonstrate that metals cause health problems in certain patients. This supplement presents the scientific background to the test and demonstrates its unique value in diagnosing immunological reactivity to allergenic metals found in dental restorations, orthopedic implants or environmental pollution. Data comparing patch test to MELISA[®] are also presented by two different laboratories.

Hypersensitivity to dental metals as an important factor in chronic fatigue is explained. Chronic fatigue is an example of how systemic inflammation caused by metals disturbs the hypothalamus pituitary adrenal axis causing adrenal fatigue and depression. These patients improve after metal removal, and the lymphocyte reactivity to specific metals returns to normal levels.

In the case of autoimmune disease, removal of dental amalgam in patients with positive MELISA[®] reactivity to inorganic mercury results in the decrease of auto-antibody titers concomitant with improvement of the patients' health.

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In another study in this supplement, analysis of breast cancer tissue shows significantly increased levels of iron, nickel, chromium, zinc, cadmium, mercury, and lead in breast cancer tissue as compared to normal breast tissue. This may lead to a novel use of chelation as a supplementary treatment of cancer.

The removal of dental metals from hypersensitive patients should be performed by specially trained dentists, since temporary worsening of health often occurs in unprotected patients. Safe dental metal removal is described, as well as how to analyze the composition of dental materials (micro analysis). Finally, new biocompatible materials for dentistry are called for, and one of the articles depicts zirconium as a promising alternative for the future.

It is hoped that this supplement will contribute to our understanding of the etiological role of metals in human disease, aid physicians and dentists in diagnosing and treating their patients, and promote further research into this fascinating and challenging field.

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