

Abstract

Adverse reactions to metals is relatively frequent in sensitive individuals, and may lead to the development of various diseases, such as lichen planus and lichenoid reaction and was also described effect of amalgam to the pathology of autoimmune diseases. In sensitive patients with known reactions to metals leads to atrophy of the oral mucosa and discomfort (burning, cutting, excessive salivation).

Adverse effects of dental materials are described as an allergic reaction type IV delayed hypersensitivity. It disrupt the immune system, increased vascular permeability, tissue is often damaged by chronic inflammation and it is also activated antigen-nonspecific component of immunity.

Monocytes are the key cells of the immune system, which act as antigen presenting cells, in particular after conversion in the tissues into macrophages are directly involved in the activation of immune responses and their stimulation is therefore crucial for the development of adverse reactions to dental materials.

In the thesis was measured cytokine production by monocytes after stimulation with metal salts. To determine the extent of the patients' responses to the metals was used lymphocyte proliferation assay (MELISA[®]), which was developed and patented in Sweden. We compared lymphocyte proliferation after stimulation with metal salts 12 years ago and now in patients with hypersensitivity to the metal salts 12 years ago and who had appeared side effects arising from the presence of metals in the oral cavity.

It was found, that after removal of metallic dental materials of the oral cavity, patients had reduced lymphocyte proliferation after stimulation with salts of Hg, Fe, Ni and Pt. After stimulation of monocytes with metal salts was discovered reduced production of GCSF, GM-CSF, IL-10, IL-11, IL-12 a M-CSF. Also it was shown, that HgCl₂ is capable higher activation of the immune response compared with NiCl₂. Metals work by binding to a protein (as hapten) and had on the body more directions, that leads to the production of many cytokines, whose levels are often influenced.