

Immune Effects of Environmental Pollutants – Immunotoxicity of Heavy Metals

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Environmental pollutants are focused on the association with recent increase in incidence of allergic and autoimmune diseases in industrially developed countries. First the concept for adverse effects of chemicals on immune system (immunotoxicity) is briefly reviewed: Immune system is the target susceptible to chemicals, and the toxicity to the system is manifested as suppression or abnormal enhancement of functions. Various agents such as organotin, dioxins and organochlorine compounds cause involution of lymphoid tissues or immunosuppression in experimental animals. While agents such as diesel particles and trichloroethylene augment allergic responses. Their effects also depend on exposure conditions and genetic or physiological status of the host. Second, as an example of immunotoxic agents, heavy metals as mercury, lead and cadmium are presented on their immunotoxic effects, with a special reference to cadmium in our study. Mercury and cadmium can cause autoimmune nephritis in animals. Immune effects are expressed differently depending on exposure level and immune status of host. It is shown that cadmium at environmentally pollution level cause autoimmune response, together with the characteristics of the effect. The autoimmune response can be modified by age and genetic predisposition of host. Based on these findings it will be discussed on the relation between immunotoxic effects of heavy metals and clinical manifestations.