Immunology and homeopathy. 3. Experimental studies on animal models

Lecture Series
Immunology and Homeopathy. 3. Experimental Studies on Animal Models

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Abstract

A search of the literature and the experiments carried out by the authors of this review show that there are a number of animal models where the effect of homeopathic dilutions or the principles of homeopathic medicine have been tested. The results relate to the immunostimulation by ultralow doses of antigens, the immunological models of the ‘simile’, the regulation of acute or chronic inflammatory processes and the use of homeopathic medicines in farming. The models utilized by different research groups are extremely etherogeneous and differ as the test medicines, the dilutions and the outcomes are concerned. Some experimental lines, particularly those utilizing mice models of immunomodulation and anti-inflammatory effects of homeopathic complex formulations, give support to a real effect of homeopathic high dilutions in animals, but often these data are of preliminary nature and have not been independently replicated. The evidence emerging from animal models is supporting the traditional ‘simile’ rule, according to which ultralow doses of compounds, that in high doses are pathogenic, may have paradoxically a protective or curative effect. Despite a few encouraging observational studies, the effectiveness of the homeopathic prevention or therapy of infections in veterinary medicine is not sufficiently supported by randomized and controlled trials.
Some experimental animals develop autoimmunity upon injection with self-antigens. The experimental autoimmunity resembles human autoimmunity in many aspects and help us to understand the autoimmune mechanisms.iii. Experimental autoimmune encephalomyelitis (EAE) is induced in rats by injecting the rats with self-myelin basic protein (MBP) in complete Freund's adjuvant (CFA). Understanding the basic mechanisms of autoimmunity in human is difficult. But animal model studies on autoimmunity have helped us to understand some of the autoimmune mechanisms. Animal model studies have shown an important role for CD4+ T cells in the induction of autoimmunity. i. Injection of self-myelin basic protein in CFA leads to EAE in rats. 3. Experimental Studies on Animal Models. Paolo Bellavite,1 Riccardo Ortolani,2 and Anita Conforti3. 1Department of Scienze Morfologico-Biomediche, University of Verona, Piazza L.A. Scuro, 37134 Verona, Italy 2Association for Integrative Medicine "Giovanni Scolaro", University of Verona, Piazza L.A. Scuro, 37134 Verona, Italy 3Department of Medicina e Sanità Pubblica, University of Verona, Piazza L.A. Scuro, 37134 Verona, Italy. The results relate to the immunostimulation by ultralow doses of antigens, the immunological models of the 'simile', the regulation of acute or chronic inflammatory processes and the use of homeopathic medicines in farming. Immunology and Infection. Related JoVE videos. However, the widely used experimental animals hold many limits as they often respond to pathogens in a different way than humans and also display a different course of disease. 1. A human in vitro lung tissue model holds the possibilities to study specific immune responses in the human lung. Human tuberculosis infection (TB) is mainly a disease affecting the lungs. A caveat for novel studies on TB is the lack of models that recapitulate human TB. The most widely used experimental animals do not form true granuloma upon M. tuberculosis infection, and are therefore not appropriate choices for studies of TB. 13-16.