

Assessment of human allergies to drugs using an *in vitro* technique.

Applications

Applications for this technique are needed for hospitals and allergists

Problem addressed

Drug allergy encompasses a spectrum of immunologically mediated hypersensitivity reactions with different mechanisms and clinical presentations. This type of adverse drug reaction not only affects patient quality of life, but may also lead to delayed treatment, unnecessary investigations, and even mortality. The pathophysiology of drug hypersensitivity reactions is complex leading to challenges in the diagnosis. Whether the reaction is immediate usually mediated by immunoglobulin E (IgE) or not, the extent of lymphocytes T (LTs) involvement in hypersensitivity to drugs is still being explored. Given the myriad of symptoms associated with the condition, diagnosis is often challenging. The current diagnostic approach is mainly based on the clinical history of the patient, skin prick tests, biological tests and sometimes provocation tests.

Technology

We have developed an *in vitro* assay which allows us to evaluate by flow cytometry, the proliferation of specific LTs and their subpopulations (CD4+ or CD8+) in peripheral blood mononuclear cells of patients who recently developed allergic drug reactions. The LTs are stained with Carboxyfluorescein succinimidyl ester and specific antibodies coupled to fluorochromes and stimulated, for six days, with 4 to 6 concentrations of allergenic drug molecules. We then identified the cytokines produced by these specific LTs using a cytometric bead array.

Advantages

- Identify specifically the drug (s) involved in drugs allergy.
- Suggest specifically, for each patient, a therapeutic alternative to the drug responsible of the allergy.

Inventors

- Diane Antonios-Gholam, Laboratory of Toxicology and Poison Control Center, Faculty of Pharmacy, Saint-Joseph University of Beirut, Lebanon
- Hayat Azouri-Tannous, Laboratory of Toxicology and Poison Control Center, Faculty of Pharmacy, Saint-Joseph University of Beirut, Lebanon