

10th World Congress and Expo on

Immunology, Immunity, Inflammation & Immunotherapies

October 19-20, 2018 | New York, USA

Basophil activation test as a biomarker of allergic desensitization

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Statement of the Problem: Specific immunotherapy (SIT) is able to modify the natural history of allergic diseases. In particular, SIT induces an immunological tolerance against the allergen and clinical control of the disease. Clinical efficacy of subcutaneously SIT (SCIT) has been clearly demonstrated as well as sublingual SIT (SLIT), but we need to identify biological markers for SIT in the attempt to reveal patients with high risk of adverse reactions, to monitor the therapy outcome and to predict relapses after SIT discontinuation. We know that both SCIT and SLIT induce a sudden increase of the basophil sensitivity in the first weeks of immunotherapy followed by a gradual decrease over some months. The purpose of this study is to evaluate if the Basophil Activation Test (BAT) can monitor the progressive desensitization of the patient during SIT.

Methodology: Patients between 18 and 60 years old allergic to wall pellitory or grass were enrolled in the study. Some of them were treated with SCIT, while others preferred to be treated with SLIT. BAT was performed at the beginning of the treatment and during pollen season for two years. BAT was performed with specific allergen at different concentrations in an attempt to evaluate basophil activation as CDsens (allergen concentration able to induce 50% of maximum activation). SIT outcome was evaluated clinically by using a VAS score.

Findings: BAT showed a higher and earlier reduction of CDsens in patients treated with SCIT compared with SLIT treated ones. In some patients, it was not possible to observe a reduction in CDsens. These patients had experienced a persistence or worsening of clinical symptoms.

Conclusion & Significance: BAT should represent a useful tool in evaluating progressive desensitization during SIT, by monitoring basophil sensitivity. CDsens could be an interesting biomarker in deciding how long continue the SIT and when to suspend it. Probably it could represent a biomarker in predicting clinical relapses after immunotherapy discontinuation.

Biography

Gennaro Maietta graduated from the Faculty of Medicine of the University of Florence in 1981 and he received a postgraduate degree in Clinical Immunology and Allergology at the school of Immunology of Prof. Ricci in 1984. During the postgraduate course, he focused his interests in thyroid autoimmunity and in thyroid stimulating antibodies detection on FTRL5 cells. Later he becomes the head of the Allergy Unit of Public Health Department in City of Lecce (Italy) and the head of the laboratory of Immunology of Pignatelli Institute in the same city. For 20 years he is interested in basophils and their role in allergic disease. He is a member of EAACI and of AAIITO (Italian Allergy and Immunology Society) and he is the coordinator of the regional section of AAIITO in Apulia.

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