

In vitro* antigen-specific sulphidoleukotriene production in patients allergic to *Dermatophagoides pteronyssinus

M. Ferrer, M. L. Sanz, I. Prieto and A. Oehling

Department of Allergy and Clinical Immunology, University Clinic, Faculty of Medicine, University of Navarra, Pamplona, Spain

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Background: Sulphidoleukotrienes (slt) are important mediators in allergic diseases that are synthesized after allergen-specific stimulation.

Objectives: The aim of this study is to determine *in vitro* slt production after allergen-specific (*Dermatophagoides pteronyssinus*) stimulus of peripheral blood leucocytes and to observe whether histamine release in whole blood with the same allergen correlates with slt production. We also wanted to evaluate whether a correlation exists between the release of slt and histamine and other diagnostic procedures as well as various clinical situations.

Methods: We studied 62 patients sensitive to *Dermatophagoides pteronyssinus* (Der p), 30 atopic controls and 12 healthy donors. We determined slt production using the CAST-ELISA technique and histamine release using two concentrations of Der p extract (20 and 2 ng/mL). We also carried out quantification of specific and total IgE levels, skin tests and pulmonary function test on each patient.

Results: We observed a significantly increased slt release after *in vitro* stimulation with Der p. There was a significant difference in the slt release between controls and sensitive patients ($P<0.001$) and between

atopic controls and sensitive patients ($P<0.001$). The data are similar to those obtained with histamine release. We noted a positive correlation ($P<0.001$) between slt and histamine release ($r=0.71$, at 2 ng/mL and $r=0.83$ at 20 ng/mL). We also found a positive ($P=0.001$), although weak ($r=0.4$ with at 2 ng/mL, and $r=0.34$ with $P=0.003$ at 20 ng/mL) correlation between slt release and specific IgE levels as well as between slt release and skin-test reactivity ($r=0.49$ at 2 ng/mL $r=0.45$ at 20 mg/mL; $P<0.001$). No significant correlation between slt release and asthma severity was observed, although a trend toward higher slt production in severe and moderate asthma was detected. We found a significant ($P<0.001$) but weak ($r=-0.3$) negative correlation between age and slt release. With respect to sex-related differences, we found significant differences ($P<0.05$) in slt release between the sexes with a higher slt release in men than in women.

Conclusion: We conclude that CAST-ELISA for quantification of slt production is a useful *in vitro* method for diagnosing sensitization to Der p. There also exists a close correlation between slt release and other parameters of allergic sensitization *in vitro* as well as *in vivo*.

Key words: asthma, CAST-ELISA, *D. pteronyssinus*, diagnosis, histamine, histamine release test, sulphidoleukotrienes.

***In vivo* validation of the time domain velocity measurement technique if blood flow in human fetuses**

J. L. Alcázar and C. Laparte

Department of Obstetrics and Gynecology, Clínica Universitaria de Navarra, School of Medicine, University of Navarra, Pamplona, Spain

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Time domain ultrasonography is an alternative to Doppler analysis of blood flow direction and velocity. The time domain technique uses timing information between successive echo pulses to measure flow