

ABSTRACT

Background: Atopic dermatitis (AD) is a chronic inflammatory skin disease with acute exacerbations and characteristic clinical manifestations. The diagnosis of AD is based on the medical history, evaluation of clinical condition, supplemented by skin or exposure tests. An integral part is also the examination of specific IgE antibodies against extract allergen or single molecular component. Biochip multiplexing techniques have recently been used for respiratory forms of allergic inflammation and when food allergy is suspected. However, these analyses could find application in the diagnosis of cutaneous manifestations of allergic inflammation, such as AD. The aim of this work was to more accurately identify the source of food and inhalant allergy in patients with AD. We evaluated sensitization profiles in patients with mild, moderate, and severe forms of AD and in a subset of patients with AD complicated by bronchial asthma and allergic rhinitis. We also addressed the sensitization to molecular components in the context of food allergy in patients with AD.

Methods: Blood serum samples were taken from adult patients with AD. Levels of specific IgE antibodies were determined by the ImmunoCAP ISAC multiplex system. The dissertation thesis summarises already published results of our scientific team.

Results: Sensitization to grass pollen allergen (rPhl p 1) and birch pollen allergen (rBet v 1) was most frequently reported in the patients with AD. Sensitization to following molecular components of grasses (rPhl p 1), house dust mites (rDer f 2, rDer p 2), moulds (rAlt a 6, rAsp f 6), and animals (rFel d 1, rFel d 4, rCan f 1, rCan f 5, rEqu c 1, nMus m 1) was significantly more frequent in patients with severe form of AD. Results of cluster analysis correspond to the molecular components into protein families grouped according to their biochemical structure. The results of the molecular component analysis were also tested in relation to the benefit for the clinical diagnosis of food allergy in patients with AD.

Conclusions: Results of our work represent the detailed sensitization profile of patients with atopic dermatitis and simultaneously point out the importance of the epidermal barrier, the disruption of which leads to the increased penetration of allergens into the body. Allergen specific IgE antibodies detected by the ISAC method is recommended to be determined in adults with severe atopic dermatitis, where the main allergens of grass pollen grains, trees, mites and animal allergens may play a crucial role in the sensitization. We recommend the adoption of the assessment of the presence of specific IgE against these components into the routine clinical procedures and treatment of patients with AD with the special respect to the patients with the high risk of development of severe adverse reactions after exposure to these allergens.