Using Component Resolved Diagnosis (CRD) in food allergy improves diagnostic-therapeutic appropriateness and therefore optimises financial resources

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Aims: The aim of this study is to evaluate the percentage change of the diagnostic-therapeutic choice in complex polysensitized patients affected by food allergy, after using CRD compared to a first level survey (medical history and skin tests), along with an economic analysis of the patient’s overall management according to the two different approaches (assessment of higher costs and savings).

Methods: In this multicenter study in real life, 187 patients polysensitized to skin tests and with clinical symptoms related to an IgE mediated food allergy were recruited. Each patient was submitted to skin prick tests (SPT) with a standard panel of food allergens and to a blood sample in order to detect specific IgE against food recombinant molecules (CRD), which were chosen according to medical history and positivity to SPT, by ImmunoCAP method (Thermo Fisher Scientific®, Uppsala, Sweden) or, when not available, by Microarray ISAC 112 allergens system (Thermo Fisher Scientific®, Uppsala, Sweden). Then the first diagnostic-therapeutic hypothesis, based only on medical history and skin tests, was recorded for each patient and, after that, the second diagnostic-therapeutic choice (final) was made, the one which would be implemented considering the CRD outcome. Therefore, an evaluation of the change of the diagnostic-therapeutic choice was carried out, in percentage, between the first hypothesis and the final choice, analyzing statistically the results by the agreement coefficient (k index) and the chi-square test. Finally, a detailed analysis was conducted on the economic impact of a molecular approach to the overall management of the allergic patient in order to evaluate whether the increase in the diagnostic costs would be compensated and eventually exceeded by savings coming from the increasing diagnostic-therapeutic appropriateness.

Results: A change in the prescription of self-injected adrenaline has been observed in about 50% of patients (k index 0.56) and an overall saving of financial resources along with a higher diagnostic-therapeutic appropriateness has been pointed out too.

Discussion and Conclusion: In this study there is only moderate agreement concerning prescription of self-injected adrenaline before and after performing CRD: as a result, it is highlighted the usefulness of CRD, at least in complex polysensitized patients, in indicating risk assessment and therefore the correct therapy of food allergy, thus resulting in a cost-saving approach.