FABER 244 IgE test in food allergy. Diagnostic accuracy for LTP proteins

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Background: FABER 244 is a new in vitro multiplex test for specific IgE detection using 122 molecular allergens and 122 allergenic extracts, coupled to chemically activated nanoparticles. Allergenic preparations, either produced in house or obtained from commercial providers, are individually coupled to nanobeads by means of optimized protocols to achieve maximum test performance.

Aim: To measure the diagnostic accuracy of FABER 244-122-122 01 by comparing with the ImmunoCAP ISAC 112 (TFS, Sweden) in patients allergic to LTP proteins shared by both tests.

Methods: A real life study as been set by analyzing the clinical records, and the FABER and ISAC test results from 94 consecutive patients referred to CAAM from March 2015 to August 2016. Data were extracted from the electronic medical record InterAll. The diagnostic accuracy measurement and test comparison were performed on 3 LTP proteins (Cor a 8, Jug r 3, Pru p 3) adopting the patients' symptoms as gold standard and MedCalc as software for statistical analysis. ISAC test Limit of Detection (LoD) was set to 0.3 ISU whereas FABER LoD was set to 0.01 FIU. In the overall analysis attention has been put on additional information coming from non-shared LTPs, Tri a 14 and Ara h 9 for ISAC, and Act d 10, Pun g 1, Sola l 6, Tri a 7k-LTP, Zea m 14 plus peanut and wheat extracts available on FABER.

Results-Discussion: Both tests appear to be accurate and well aligned to each other for all three analyzed LTP proteins. In terms of sensitivity FABER performs better than ISAC on Cor a 8 (100% vs 73%), same as ISAC on Jug r 3 (100% both) and FABER better than ISAC on Pru p 3 (96% vs 91%). In terms of specificity FABER performs better than ISAC on Cor a 8 (96% vs 94%), same as ISAC on Jug r 3 (96%), whilst ISAC performs better on Pru p 3 (97% vs 92%). IgE detection by ISAC Ara h 9 and Tri a 14 was compensated by the peanut and wheat extracts, whereas info on additional food LTPs could be obtained from the FABER extended panel including 25 extracts from plant-derived foods bearing LTPs.

Conclusions: FABER test is a new in vitro test for specific IgE detection, including molecules and extracts. Considering the food allergen group belonging to the LTP, FABER appears to be accurate and in good agreement with ISAC results. The specific advantage of FABER relies on the chance of testing patients to a broader panel of LTP as well as to a large number of extracts, complementing the results on single allergenic molecules.