FABER 244 IgE Test in Food Allergy. Diagnostic accuracy for LTP proteins

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EAACI EUROPEAN ACADEMY OF ALLERGY AND CLINICAL IMMUNOLOGY
FAAM 2016
13-15 October 2016
Rome, Italy
Food Allergy and Anaphylaxis Meeting
4th Food Allergy and Anaphylaxis Meeting

INTRODUCTION

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 (Thermo Fisher Scientific , Sweden) in patients allergic to LTP proteins shared by both tests.

MATERIAL & METHODS

A real life study has been carried out analyzing the clinical records, and the FABER and ISAC test results from 94 patients referred to CAAM from March 2015 to August 2016. Data were extracted from the electronic medical record InterAll. The diagnostic accuracy comparison was performed on the 3 LTP proteins (Cor a 8, Jug r 3, Pru p 3) present on both tests, adopting the patients' symptoms as gold standard. The ISAC test Limit of Detection (LoD) was set to 0.3 ISU whereas FABER LoD was set to 0.01 FIU, in accordance with the relevant test suppliers specifications.
A further diagnostic accuracy comparison between the same tests was performed using the MedCalc software. In this case, MedCalc was able to identify for each test the optimum LoD, the so called criterion maximizing the performance, i.e. sensitivity and specificity of each test.

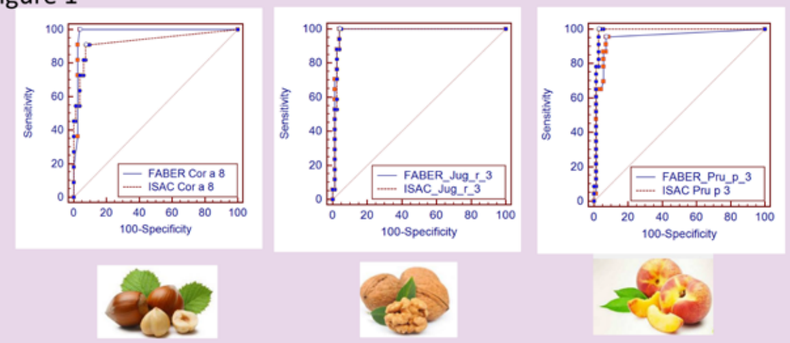
RESULTS

Table 1

ISAC	Cor a 8	Jug r 3	Pru p 3
Sensibility	73%	100%	91%
Specificity	94%	96%	97%
FABER	**Cor a 8**	**Jug r 3**	**Pru p 3**
Sensibility	100%	100%	96%
Specificity	96%	96%	92%

Sensibility and Specificity based on Limit of Detection (LoD) was set to 0.3 ISU whereas FABER LoD was set to 0.01 FIU according to the relevant test suppliers specifications

Figure 1



Sensibility and Specificity based on the optimum LoD, the so called criterion, maximizing the performance, i.e. sensitivity and specificity of each test according to MedCalc software

Act d 10
Cor a 8
Pru p 3
Pun g 1
Jug r 3
Zea m 14

FABER
+ 25 extracts from plant-derived foods bearing LTPs.

Sola l 6
Tri a 7k -LTP

Ara h 9
Cor a 8
Pru p 3
Jug r 3
Tri a 14

ISAC
No exctract

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.
The test comparison performed using the LoD specified by the test suppliers indicates that both tests appear 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 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.

SUMMARY / CONCLUSION

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.

ACKNOWLEDGEMENTS

Sara Nuti and Silvia Monti: they collaborate with Allergy Data Laboratories s.c. giving support to the CAAM activities. **The ADL team** who develops and maintains the Allergome platform, and the external modules, InterAll, ReTiME, and the new CDRS.

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