Prognostic factors facilitating multiple food allergies and atopic march occurrence in children with Non-IgE-mediated gastrointestinal Food Allergy: results of two years follow up of the NIGEFA project

Authors: Carucci Laura[1,2]; Capasso Pasqualina[1]; Bedogni Giorgio[3,4], Coppola Serena[1,2]; Giglio Veronica[1,2]; Nocerino Rita[1,2] and Berni Canani Roberto[1,2,5,6]

[1] *Department of Translational Medical Science, University Federico II, Naples, Italy.*
[2] *Immunonutritionlab at CEINGE-Biotecnologie Avanzate s.c.ar.l. University of Naples Federico II, Naples, Italy*
[3] *Internal Medicine, S. Maria delle Croci Hospital, AUSL Romagna, Ravenna, Italy*
[4] *Department of Medical and Surgical Sciences, Alma Mater Studiorum University of Bologna, Italy*
[5] *European Laboratory for the Investigation of Food-Induced Diseases, University of Naples Federico II, Naples, Italy*
[6] *Task Force for Microbiome Studies, University of Naples Federico II, Naples, Italy*

Background: Many aspects of non-IgE mediated gastrointestinal food allergies (non-IgE-GIFA)(including four phenotypes of food protein-induced enterocolitis syndrome, FPIES; enteropathy, FPE; allergic proctocolitis, FPIAP; and motility disorders, FPIMD), are still poorly characterized. The NIGEFA project was launched for the investigation of these conditions.

Method: Prospective observational study evaluating children with non-IgE-GIFA diagnosed according to standard criteria observed at a tertiary center for pediatric gastroenterology and allergy (both sex, aged <14y, follow up 24m). Main anamnestic and clinical data were collected from all enrolled patients.

Results: 123 children (56% male) with a median (IQR) age of 150 (60-300) days were enrolled into the study. The frequency of non-IgE-GIFA was: FPE(39%), FPIES(17%), FPIAP(16%), and FPIMD(28%). 42% of children had multiple food allergies (FA) at baseline and 64% had a family risk for allergy. Male sex (Odds Ratio (OR)=2.24, 95%CI 1.07 to 4.71) and 1-month diagnostic delay (OR=1.09, 1.01 to 1.18) were associated with multiple FA. The 24-mo overall rate of immune tolerance acquisition was 54%, with a higher rate in FPIAP(75%) compared with FPIMD(62%), FPE(54%) and FPIES(24%). The odds of 24m immune tolerance acquisition rate were lower in children with family risk for allergy (OR=0.41, 0.19 to 0.89) and in those with multiple FA at baseline (OR=0.24,0.11 to 0.51). At the 24m follow up, the atopic march was observed in 46% patients, with similar rates in the four clinical phenotypes. The presence of multiple FA at baseline was associated with atopic march occurrence (OR=2.22,1.07 to 4.61) at 24 months.
Conclusion: These data suggest the importance of early diagnosis to prevent the occurrence of multiple FA and of the atopic march and to hasten the immune tolerance acquisition in children with non-IgE-GIFA.