Cytokine network involved in non-IgE-mediated gastrointestinal food allergy: results fromNIGEFA project

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Objectives and Study: The NIGEFA Project includes the study of the pathophysiology of non-IgE- mediated gastrointestinal food allergy (non-IgE-GIFA): food protein–induced enterocolitis syndrome (FPIES), motility disorder (FPIMD), allergic proctocolitis (FPIAP) and enteropathy (FPE). We aimed to comparatively evaluate the cytokine expression pattern of Th2 (IL-4, IL-5, IL-9, IL-13), Th17 (IL-17), Th1 (IFN-γ), tolerogenic cytokine IL-10, and pro-inflammatory (IL-6, TNF-α) cytokines in peripheral blood mononuclear cells (PBMC) from children with non-IgE-GIFA, IgE-mediated and healthy controls.

Methods: PBMCs were obtained from 20 non-IgE-GIFA (5 FPE, 5 FPIES, 5 FPIMD, 5 FPIAP) and 5 IgE-mediated children affected by cow's milk allergy. All subjects were male Caucasians and aged 6- 24 months. Five sex- and age-matched healthy controls were also evaluated. PBMCs were stimulatedwith 250 µg/ml of cow's milk proteins (CMP) or with Bovine Serum Albumin (BSA) for 7 days. The rateof IL-4, IL-17 and IFN-γ was analyzed by flow cytometry. IL-5, IL-9, IL-13, IL-10, IL-6, TNF-α and production was analyzed by ELISA.

Results: After stimulation with CMP, we observed a similar increase of IL-4, IL-17, IL-5, IL-13, IL-6,TNF-α production in PBMCs from IgE-mediated and non-IgE-GIFA children (without differences among different clinical phenotypes). Instead, a significant IFN-γ production was observed only in PBMCs from non-IgE-GIFA children. No modulation of IL-9 and IL-10 production was observed.
PBMCs from healthy controls resulted unresponsive for cytokines production after CMP stimulation.

Conclusions: A similar cytokines network activation was demonstrated in IgE- and non-IgE-GIFAspaediatric patients with only IFN-γ that could be able to discriminate between these two conditions.

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