000192 | The evaluation of tolerance rate and the immune tolerance acquisition in children affected by IgE-mediated cow's milk allergy switching from amino acid-based formula to extensively hydrolyzed casein formula: the SDACMA project

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Background: The **S**tep **d**own **a**pproach for **c**ow's **m**ilk **a**llergy (SDACMA) project was designed to evaluate the tolerance rate and the effect of immune tolerance acquisition in CMA children who started dietary treatment with amino acid-based formula (AAF) and switched to extensively hydrolyzed casein formula with the probiotic *L. rhamnosus* GG (EHCF + LGG).
Method: Double blind randomized trial involving children with IgE-mediated CMA receiving AAF from at least 4 weeks with full and stable symptoms remission. The EHCF + LGG tolerance was evaluated by the results of double blind placebo controlled food challenge (DBPCFC). Then, subjects who tolerated EHCF + LGG were randomly allocated to two groups of 12-m dietary intervention: group 1, continuing AAF, and group 2 receiving EHCF + LGG. Immune tolerance acquisition was evaluated after 12 months of dietary treatment by the result of DBPCFC.
Results: 60 IgE-mediated CMA children were enrolled [55% male, mean age (±SD) at CMA diagnosis 4 (±1.3) months]. Fifty-nine of 60 patients were able to tolerate EHCF+LGG. These patients were randomly allocated into the two groups of dietary intervention. At the enrollment demographic and anamnestic features were similar into the two groups [Group 1: 53.3% male, mean age (±SD) at CMA diagnosis 3.9 (±1.3) months; symptoms at CMA diagnosis: 66.7% gastrointestinal, 80% cutaneous, 13.3% respiratory. Group 2: 58.6% male, mean age (±SD) at CMA diagnosis 4.2 (±1.2) months; symptoms at CMA diagnosis: 75.9% gastrointestinal, 65.5% cutaneous, 10.3% respiratory]. After 12-m of dietary treatment, the rate of immune tolerance acquisition was higher in the EHCF+LGG group if compared to the AAF group (48.3% vs. 3.3%, $p < 0.001$).
Conclusion: The results of the SDACMA project suggest that EHCF + LGG could be tolerated by the vast majority of the IgE-mediated CMA children and that, when possible, the step down from AAF to EHCF + LGG could result in a higher rate of immune tolerance acquisition after 12-m of dietary treatment.

000200 | Guided gradual egg-tolerance induction in hen's egg allergic children tolerating baked egg: a prospective randomized trial

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Background: The majority of egg allergic children tolerates baked egg. This is related to a reduced allergenicity of the egg proteins by a destruction of conformational epitopes along with the "matrix effect" in which the interaction with wheat hampers their bioavailability and digestibility. Hereby, thermal processing has no effect on ovomucoid, unlike the heat-labile ovalbumin. Consuming baked egg has shown to accelerate the resolution of egg allergy. Few prospective studies have evaluated an allergist-driven gradual egg-tolerance induction, after baked egg tolerance, at home. We aimed to investigate the clinically most favorable duration of gradual egg-tolerance induction in baked egg tolerant children at home, with regard to raw egg tolerance (NCT02487420).
Method: Baked egg tolerant children above 12 months of age were randomly assigned to a short- or long-arm protocol. In the short arm, egg tolerance was studied over 18 months compared to 30 months in the long arm. Based on the influence of thermal processing on egg proteins, as investigated by ELISA, SDS-PAGE and immunoblotting, our protocol allowed the step-wise introduction of baked egg (cake), hard-boiled egg, omelet (pancakes/waffles), soft-boiled egg and raw egg. At inclusion, children either passed an in-hospital baked egg challenge or had ovomucoid sIgE ≤1.2 kUA/L, which was considered safe for introduction at home.
Results: Of the 78 children in the intention-to-treat group, 39 were randomized to each arm. Fifty-five children reached the raw egg tolerance endpoint, of which 74% in the short arm and 67% in the long arm. Within the short arm the median time to raw egg tolerance was 24 months (95% CI, 21–26 months) compared to 30 months (95% CI, 28–32 months) in the long arm ($p = 0.004$). No grade IV reactions or cases of eosinophilic esophagitis were observed. The short arm was considered to be non-inferior to the long arm. Gel electrophoresis revealed that heating leads to the disappearance of ovalbumin, in contrast to ovomucoid, resulting in an increasing ovalbumin/total protein and decreasing ovomucoid/total protein ratio under lower heating temperature and duration. In accordance, the IgE binding to ovalbumin decreased with extensive heating, as opposed to ovomucoid. However, heating in the presence of wheat led to a decreased IgE reactivity to ovomucoid.
Conclusion: Our gradual short arm protocol appears to be safe and allows clinicians to guide baked egg tolerant children towards raw egg tolerance at home.

000280 | Identifying causative foods in adults with eosinophilic esophagitis using ex vivo food allergen stimulation of esophageal biopsies

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