

**319 Early Introduction of Egg for Infants with Atopic Dermatitis to Prevent Egg Allergy: A Double-Blind Placebo-Controlled Randomized Clinical Trial**

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**RATIONALE:** We investigated whether an early introduction of a small amount of egg for infants with atopic dermatitis would prevent egg allergy in the first year of life.

**METHODS:** This intervention was carried out as a double-blind, placebo-controlled, parallel-group, randomized clinical trial (DBPCRCT). Infants with atopic dermatitis were randomly assigned to one of the two groups: placebo or egg consumption. The infants were enrolled between four to five months of age, and started taking egg powder or placebo daily from six months until 12 months of age. Participants of the intervention arm (egg group) took 50 mg of heated egg powder from six to nine months and 250 mg from nine to 12 months of age. The primary outcome was a prevalence of hen's egg allergy confirmed by oral food challenges at 12 months of age.

**RESULTS:** This trial was completed based on the result of a scheduled interim analysis which showed a significant difference between the two groups. A total of 121 participants were in the intention-to-treat analysis (placebo group n=61; egg group n=60). The prevalence of egg allergy was 37.7% in placebo group and 8.3% in egg group (p=0.0013). There was no significant difference in adverse events between the two groups.

**CONCLUSIONS:** The introduction of a small amount of heated egg at six months old followed by stepwise increasing in intake is effective and safe for infants with atopic dermatitis to prevent hen's egg allergy in the first year of life. The trial registration is UMIN-CTR 000008673.

**320 Farm Exposure Is Associated with Reduced Rates of Viral Respiratory Illnesses in Early Life**

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**RATIONALE:** Early-life exposure to farm animals is associated with reduced allergic diseases. The aim of this study is to determine effects of farm exposure on rates of viral infections and illnesses through age 2 years. We hypothesized that the rate of viral infections will be the same between farm and non-farm children, while the rate of illnesses will be lower in farm children.

**METHODS:** In a prospective birth cohort study, nasal mucous samples were collected from farm and non-farm children at scheduled intervals (2, 9, 12, and 18 months of age), and during respiratory illnesses (at least mild symptoms ≥ 2 days). Farm children were born to women who reside or work on cattle or dairy farms. Infection rates were determined by viral detection (multiplex PCR) at scheduled visits.

**RESULTS:** 210 nasal specimens from 28 farm children and 24 non-farm children were analyzed. Mean length of time for follow-up was 10.1 months for farm children and 10.3 months for non-farm children. Viral detection rates were similar in farm and non-farm children at scheduled visits (2 months: 8/28 vs. 9/24, p=0.49; 9 months: 7/15 vs. 8/15, p=0.72; 12 months: 3/11 vs. 4/6, p=0.11; 18 months: 1/3 vs. 1/3, p=1.00). Non-

farm children had increased numbers of viral respiratory illnesses/child/year (mean 2.69, 95% CI, 1.79-4.04) compared to farm children (mean 1.45, 95% CI 0.94-2.25), a 1.85-fold increase (95% CI 1.02-3.35, p=0.04). **CONCLUSIONS:** Despite similar rates of viral infection, farm versus non-farm children have significantly decreased rates of respiratory viral illnesses. Early-life farming exposures may impact anti-viral immune maturation.

**321 Could Allergen Immunotherapy be a Therapeutic Intervention in Eosinophilic Oesophagitis?**

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**RATIONALE:** Eosinophilic esophagitis (EoE) is characterized by esophageal dysfunction and, histologically, by eosinophilic inflammation. Although different therapeutic interventions are used to improve EoE, there is no aetiological treatment and diet exclusion is difficult.

**OBJECTIVE:** Component resolved diagnostic (CRD) may be useful in detecting the allergens that might be involved in this inflammatory process. This will allow the selection of a proper diet and allergen immunotherapy (AIT) to treat EoE.

**METHODS:** 55 patients with clinical and histological diagnosis of EoE were tested for environmental and food allergens. CRD analysis with microarray technology was performed. Clinical evolution, including adjusted symptom scores and endoscopic biopsy, were performed every six months for 2 years. 50 healthy patients served as control group. Subcutaneous AIT (SCIT- ALK Abelló) was administered in 39 patients with EoE. Exclusion diet was indicated according to CRD (only 1 or 2 group of food avoidance).

**RESULTS:** Allergy was detected in 88% of patients with EoE. The predominant allergens were grasses group 1 and, in particular, nCyn d 1 (*Cynodon dactylon*) or Bermuda grass pollen, followed by lipid transfer proteins (LTP) of peach and mugwort, hazelnuts and walnuts. After two years of the array-guided exclusion diet and SCIT, patients with EoE showed a significant clinical improvement and 68% of patients were discharged from clinic (cure based on negative biopsy, no symptoms, no medication intake).

**CONCLUSIONS:** In patients with EoE, sensitization to plant foods and pollen is important. AIT seems to be efficacious and well tolerated in patients with EoE.