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Effects of avoidance of hazelnut upon IgE reactivity profiles and basophil responsiveness in hazelnut allergic and sensitized children

Margaretha A. Faber, Annick Bastiaensen, Evelyne Mangodt, Athena van Gasse, Ine Decuyper, Vito Sabato, Margo M. Hagendorens, Chris H. Bridts, Luc S. De Clerck, Didier Ebo

1Department of Immunology-Allergology-Rheumatology, Faculty of Medicine and Health Sciences, University of Antwerp, Antwerp University Hospital, Belgium;
2Department of Pediatrics, Antwerp University Hospital, Belgium

Background: Hazelnut allergy shows distinct clinical patterns depending on the sensitization profile, which shows variations according to age. This study aims at determining whether alterations in the sensitization profile to hazelnut occurs in early childhood.

Methods: Twenty-one infants with atopic dermatitis demonstrating an early sensitization to hazelnut (AD-group) and 9 children (< 4 years old) with a history of hazelnut allergy (GR-group) were selected. At baseline (T0) children were recommended to avoid hazelnut. At T0 and follow-up consultation (T1) history taking and specific immunoglobulin E (sIgE) measurement to hazelnut extract and its components were performed. A basophil activation test (BAT) with hazelnut was performed at T0 and T1 in children of the GR-group and at T1 in children of the AD-group.

Results: Median follow-up was 6.2 years. At T1, a significant increase in sensitization to Cor a 1.04, Cor a 8, Cor a 11, Cor a 14 and Bet v 1 was observed in the AD-group. Six (29 %) infants from the AD-group had uneventful accidental exposure to hazelnut, all of them showed a negative BAT despite positive sIgE results. Children out of the GR-group were significantly more frequently sensitized to Cor a 1.04 and Bet v 1 at T1. Sensitization to other components and BAT results did not significantly differ between T0 and T1.

Conclusion: Despite avoidance of hazelnut, sensitization profiles can broaden during early childhood. However, in the absence of a generalized hazelnut allergy, the clinical relevance of these serological changes remain elusive as the majority of these children demonstrate negative BATs.