



In A Nutshell – Birch Co-sensitization Among Children With Peanut, Hazelnut And Almond Allergies.

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Rationale

- Individuals diagnosed with nut allergies often experience mild oropharyngeal symptoms only, referred to as pollen food allergy syndrome (PFS).
- PFS is secondary to cross-reacting homologous proteins in pollens and nuts.
- In Finland, Uotila et al. examined cross-sensitization profiles of peanut and tree nuts in a birch endemic area.⁸
- Findings were that 84% of subjects sensitized to birch had co-sensitivity to hazelnut. This number was 71% for almond and 60% for peanut.⁸ The correlation between birch sensitization and component resolved diagnostics (CRD) profiles of the nuts was not assessed.²³
- CRD measures IgE to specific component proteins within the food allergen, as opposed to serum-specific IgE that measures IgE to the whole food extract.

- This technique has helped refine the differentiation between life-threatening severe allergy and sensitivity associated with mild symptoms.²³
- We investigated the association between peanut, almond and hazelnut allergies, and birch co-sensitization to provide insight into the prevalence of PFS among nut allergic children seen in our practice.

Methods

- After IRB approval, we performed a retrospective chart review of 67 pediatric patients seen in our clinic with a diagnosis of peanut, almond or hazelnut allergy and investigated the presence of birch co-sensitization.

Results

- Of 67 patients, 58 had peanut allergy, 48 had hazelnut allergy and 45 had almond allergy.
- Hazelnut and almond co-sensitization was seen in 41(61%) patients while peanut, hazelnut and almond co-sensitization was seen in 35 (52%) patients.
- Birch sensitization was present in 41 (61%) patients, while 10 (15%) patients had not been tested.
- Of 58 peanut allergic patients, 35 (60%) were birch sensitized; 9 (16%) had not been tested (95% CI, 47.7-72.9%).
- Of 48 patients with hazelnut allergy, 35 (73%) had birch sensitization, and 5 (10%) had not been tested (95% CI, 60.3-85.4%).
- Birch sensitization was seen in 33 (76%) of 45 almond allergic patients, while 6 (13%) had not been tested (95% CI, 60.4-86.2%).

Allergy	Peanut	Hazelnut	Almond
Birch Positive	35 (60%)	35 (73%)	33 (76%)
Not tested	9 (16%)	5 (10%)	6 (13%)
TOTAL	58	48	45

Age (years)	Male	Female	Total
14 years	8	13	21
15 years	3	4	7
16 years	12	13	25
17 years	7	7	14
TOTAL	30	37	67

Conclusions

- Here we present preliminary data suggesting the presence of birch co-sensitization among a proportion of patients with peanut, hazelnut and almond allergies, raising the possibility of PFS.
- This may have implications in failed oral challenges, with PFS being a potential confounding factor.
- An understanding of the prevalence of this cross-sensitization to birch tree (which is very common in this geographic region), and its correlation to clinical reactivity may give useful insight into management of these food allergies.
- An understanding that accidental exposure to these nuts will lead to mild oral allergy symptoms and not life-threatening anaphylaxis may have a significant impact on the lifestyle of individuals with these allergies.
- Results of further investigation into a larger data set is pending.

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