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Abstract

Real-life Experience with Long-term Peanut vs Tree nut Oral Immunotherapy for Nut Allergic Children: A 5 year Singe Center Study from Luxembourg

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Background

Oral immunotherapy (OIT) is an effective treatment modality for nut allergies and continued regular intake of OIT is required to maintain desensitization (DS). Extensive data is available on peanut-OIT (PN-OIT), however studies on immunotherapy for tree nut (TN) allergies are limited. Concerns over reports that TN causes more severe reactions than PN, could limit the implementation of TN-OIT in clinical practice.

Objective:

To evaluate the long-term OIT outcome based on DS rates and reports of adverse events (AEs) in peanut (PN) versus tree nut (TN) allergic children (3-18 years) following the same OIT protocol over a 5 year follow up period.

Method:

Seventy-one oral food challenge (OFC) proven PN and TN-allergic children were recruited for this study. Multiple OFCs upto a cumulative dose of 3 g nut protein were done to assess for DS. Skin prick test (SPT), specific-IgE (sIgE) were monitored throughout OIT. We used the consortium for food allergy research (CoFAR) grading scale version 3.0 to classify AEs during immunotherapy.

Results:

Of the 71 patients recruited, five underwent a consecutive double OIT. Patients started OIT at a median age of 8 years. DS rates at 18, 36 and 60 months of OIT were 73.7%, 78.6% and 77.8% for PN-OIT and 91.3%, 95% and 100% for TN-OIT respectively. Proportion of patients reporting at least one AE significantly decreased by 73.3% for PN-OIT (p=0.001) and 73% for TN-OIT group (p=0.01) from start to end of the 5 year OIT. During MP, risk of AEs was significantly higher in the PN than TN-OIT group (incidence risk ratio of 0.3, 95% CI 0.2-0.5); p<0.001. SPT and sIgE continue to decrease throughout the OIT duration. Based on the results of the successive OFCs and reported AEs, DS was achieved in 23/32 (71.9%) PN-OIT vs 20/21 (95.2%) TN-OIT patients. Amongst the desensitized patients, 14/23 (60.9%) PN-OIT vs 17/20 (85%) TN-OIT had low clinical reactivity while 9/23 (39.1%) PN-OIT vs 3/20 (15%) TN-OIT had high clinical reactivity. DS was not achieved in 9/32 (28.1%) and 1/21 (4.8%) PN vs TN-OIT respectively. Overall TN-OIT was associated with a more favorable long-term OIT outcome (p=0.02). Low sIgE, sIgE-total IgE ratio and low cumulative reactive dose at baseline were associated with a better PN-OIT outcome (p<0.001, <0.01, 0.04 respectively).

Conclusion

Clinical outcome continues to improve with immunotherapy. Long-term OIT is safe and well accepted by most of our patients and parents. TN-OIT yielded a better OIT outcome than PN-OIT. PN allergic children with high degree of allergic sensitivity were most likely to have an unfavorable OIT outcome.