Sustained Unresponsiveness to Peanut in Subjects Who Have Completed Peanut Oral Immunotherapy


PURPOSE OF THE STUDY. The goal of this study was to determine if long-term treatment with oral immunotherapy (OIT) will result in sustained unresponsiveness to peanut.

STUDY POPULATION. The study enrolled 39 children, ages 1 to 16 years, with peanut allergy defined as a clinical history of a reaction to peanut within 60 minutes of ingestion, a positive peanut skin prick test (SPT) result $\geq$3 mm, and peanut-specific immunoglobulin (IgE) $\geq$15 kU/L or with a positive SPT result and peanut IgE $\geq$7 kU/L and a clinical reaction within the previous 6 months. Subjects with poorly controlled or severe asthma and those with a history of severe anaphylaxis were excluded.

METHODS. Daily OIT was administered by using a standard protocol with initial dose escalation, build-up every 2 weeks to 4000 mg, and daily maintenance dosing for up to 5 years of therapy. Blinded oral food challenges (OFC) to 5000 mg of peanut were performed during and at the end of the study, including after 4 weeks of OIT cessation to assess sustained unresponsiveness. Peanut SPT, IgE testing, and immunologic assays were conducted throughout the study. A telephone survey was conducted at the end of the study to assess peanut consumption and symptoms noted.

RESULTS. Twenty-four of the 39 subjects completed the protocol. Six subjects withdrew due to allergic adverse effects, and 9 withdrew for other reasons. Twelve subjects demonstrated sustained unresponsiveness after the final OFC and were deemed treatment successes (TS) and were instructed to add peanut ad libitum to their diet; those not passing the final OFC were considered treatment failures (TF) and were instructed to continue dietary avoidance of peanuts. At baseline and final OFC, TS had smaller SPT results ($P < .01$) and lower peanut-specific IgE ($P < .01$), Ara h 1 ($P < .05$), and Ara h 2 ($P < .01$) levels plus a reduced peanut-specific IgE/total IgE ratio ($P < .001$) compared with TF. Peanut IgG4 levels did not differ between the 2 groups. Survey results showed that none of the TS reported allergic reactions to peanut compared with 14% of TF. TS consumed a median of 555 mg/d (0–4000 mg/d) of peanut 3 days per week (0–7 days/week).

CONCLUSIONS. This study is the first to show sustained unresponsiveness after peanut OIT in ~50% of subjects treated for up to 5 years, results that persisted after OIT. Smaller SPT results and lower peanut-specific IgE levels strongly correlated with success of treatment.

REVIEWER COMMENTS. Sustained unresponsiveness in peanut OIT is a vital step in the treatment of peanut food allergies. This advancement in OIT is associated with direct benefit that likely requires ongoing antigen exposure for persistence. Further study in larger populations is needed to advance OIT as a viable treatment option for widespread use.

Assessing the Efficacy of Oral Immunotherapy for the Desensitisation of Peanut Allergy in Children (STOP II): A Phase 2 Randomised Controlled Trial


PURPOSE OF THE STUDY. The goal of this study was to establish the efficacy of oral immunotherapy (OIT) for the desensitization of children with peanut allergy.

STUDY POPULATION. Children ages 7 to 16 years with an immediate peanut hypersensitivity reaction and a positive result on skin prick test and double-blind, placebo-controlled food challenge (DBPCFC) to peanut were recruited from allergy clinics and national patient support groups.

METHODS. In phase 1 of this unmasked, randomized, placebo-controlled trial, children in the active OIT group received 2 to 800 mg/d of peanut protein, and those in the control group continued to avoid peanut. The primary outcome was desensitization, defined as passing a DBPCFC to 1400 mg of peanut protein after 6 months. During phase 2, control participants remaining allergic to peanut received OIT and had a repeat DBPCFC.
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