

Peanut allergy immunotherapy—what are the facts?

A recently published Australian study has been heralded as a ‘cure’ and ‘breakthrough’ in peanut allergy. This study examined patients 4 years after they had completed 18 months in a randomized controlled trial (RCT) (the parent study) comparing a probiotic combined with peanut immunotherapy (PPOIT) versus placebo.

Firstly, the claim that most patients treated with PPOIT were cured is false. Patients that were ‘cured’ had the same number of food allergic reactions and skin prick test positivity as those that never received any immunotherapy: 4 patients with PPOIT had 11 reactions whereas 6 patients treated with placebo had 9 reactions. The average skin prick wheal was 8.1 mm +/- 7.7 mm in the PPOIT group, whereas it was 13.3 mm +/- 7.6 mm in the placebo group; the values were not statistically significantly different.

Secondly, the claim that probiotics were responsible for any efficacy is unproven. In the parent study, there were only two groups: those that received a combination of peanut and probiotics (PPOIT) versus those that received placebo. There was no group that received peanut without probiotics, or probiotics alone, to determine the contribution, if any, the probiotic made to any of the outcomes. Therefore, no claims can be made about the long-term effects of 18 months of PPOIT over and above oral immunotherapy using peanut alone.

Thirdly, over 10 previously published randomized studies of peanut immunotherapy have reported findings similar to the recent PPOIT study. In these trials, an average of 80% of peanut allergic patients given increasing amounts of peanut for approximately 18 months are able to ingest 5 grams of peanut in a single sitting without having an allergic reaction; a process called “desensitization”. These previous studies have solidly established that desensitization often disappears when patients stop eating peanuts regularly. The latest PPOIT report replicated these findings: they observed that a subset of patients (16 out of 31) that were desensitized to peanut in the parent study and who continued to eat peanuts on a regular basis remained, unsurprisingly, desensitized 4 years later. This hardly qualifies as a breakthrough.

Fourthly, major concerns about the design and conduct of the study limit the scientific validity of its findings. The patients studied in the latest PPOIT report were outside of a randomized clinical trial setting, meaning that the investigation no longer met the ‘gold standard’ method to demonstrate a treatment’s effectiveness. Indeed, at 4 years, the study was no longer randomized, blinded, balanced, or systematically conducted. Further, those that entered the trial may not have even had peanut allergy in the first place. Standard eligibility for most peanut OIT trials is the confirmation of peanut allergy by food challenge before being entered in the trial; the PPOIT study did not do this. These and other limitations greatly reduce the credibility of the study’s findings.

The PPOIT study is one of several trials aimed at developing a treatment for peanut allergy. Let it be clear – the problem is not yet solved. The road towards developing transformative treatments for peanut allergy is a long one, and requires new insightful approaches by those committed to find them. Among other barriers to translation, peanut immunotherapy is associated with potential side effects, and a greater risk of reactions with “cofactors” such as exercise and infection.

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