

Oral Immunotherapy for Peanut Allergic Patients
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Summary

Peanut allergy is one of the most serious food allergies in terms of persistence and severity of the reaction, and appears to be a growing problem. Due to the life-long nature of this allergy for most people and the lack of effective treatment, allergy immunotherapy (allergy shots) has been examined as a treatment option. Previous scientific studies have looked at different types of allergy shots in patients who have peanut allergy. Given the high rate of undesirable allergic reactions in the patients in these studies and the repeated rate of accidental peanut ingestion, other forms of immunotherapy are needed for this potentially fatal allergy. Oral immunotherapy has been studied for the treatment of nasal allergies and food allergy, as well as drugs such as antibiotics and biological agents. In the most recent studies on oral immunotherapy with patients who have food allergy (milk, peanut, egg and fish), the majority of patients (85%) successfully completed the treatment regimen. Although not scientifically thorough, these studies demonstrated that the mild side effects associated with treatment were controlled by the occasional use of antihistamines.

This pilot study proposal is designed to find out if we can use oral peanut immunotherapy in subjects allergic to peanuts. Our hypothesis is that oral peanut immunotherapy will make subjects who have peanut allergy less allergic and induce changes in their immune system. The goal of this proposal is to produce a new treatment that would benefit these subjects by lowering the risk of anaphylactic reactions (**desensitization**) and changing the peanut-specific immune response in subjects who have peanut allergy (**tolerance**). We will work with subjects who are at risk for life-long peanut sensitivity (peanut specific IgE > 15 kIU/ml in blood studies and significant initial symptoms). We anticipate being able to make these subjects less allergic to peanuts and cause long-term immune changes in their peanut allergic response. The specific aims for this proposal are to: (1) make use of oral peanut immunotherapy to treat subjects with peanut allergy to lower the risk of anaphylactic reactions and cause children to outgrow their peanut allergy, and (2) determine the effect that oral peanut immunotherapy has on the peanut-specific immune response.

Background

Food allergic reactions have generated increasing concern in the U.S., with prospective studies indicating that 6-8% of children less than four years of age experience IgE-mediated food allergic reactions. A recent survey in the U.S. found that 1.3% of the total population is allergic to peanuts or tree nuts. Despite increased recognition and understanding of food allergies, food-induced anaphylaxis is the single-most common cause of anaphylaxis in hospital emergency departments, accounting for about one third of anaphylaxis cases seen. In the U.S., it is estimated that emergency departments treat about 30,000 food-induced anaphylactic events each year, and that about 200 fatal cases occur annually. Either peanuts or tree nuts cause more than 80% of these reactions.