Oral immunotherapy utilizes the pathways of oral tolerance, in which the ingestion of antigenic proteins promotes physiologic changes which suppress an allergic response to the ingested antigen.

Key insights
Oral immunotherapy (OIT) is a novel strategy for the treatment of food allergies. Clinical trials have shown that OIT can be effective at desensitizing subjects to a particular food allergen, such as peanut, milk, egg or wheat. The first clinical trial of peanut OIT indicated that OIT could be successfully used to induce desensitization in subjects with peanut allergy, with a favorable tolerability profile and low rates of anaphylaxis. The widespread use of OIT is currently limited by its safety and tolerability. Further studies are needed to determine whether the use of OIT can induce permanent tolerance to the food antigen.

Current knowledge
Food allergies are potentially life-threatening conditions that affect a growing number of individuals. In developed countries, up to 8% of children and 5% of adults are affected by food allergies. The standard of care currently relies on avoidance of the allergen and immediate treatment of reactions in the case of accidental exposure. This strategy is not only inadequate, but may result in nutritional deficiencies, financial burden, and has a social and psychological impact on the patient. Severe reactions and fatalities continue to occur upon accidental ingestion of small quantities of the food allergen.

Practical implications
In OIT, the offending food item is consumed either in natural or processed form in gradually increasing doses, with the goal of establishing permanent tolerance to ingestion. OIT protocols typically consist of an initial dose escalation day, followed by a buildup phase and a maintenance phase. Use of the anti-IgE monoclonal antibody omalizumab has been applied to enhance the safety and tolerability of OIT. The analysis of IgE levels and IgG4 binding to allergens may help in predicting patient outcomes and improving the safety of OIT. However, the optimal dosing regimen for initial escalation, buildup, and maintenance remains to be established, and it is still unclear what duration and frequency of OIT dosing are required to maintain desensitization.

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