RATIONALE: The components of agricultural products vary due to variations in growing conditions and harvest time. Protein concentration standardization of OIT foods appears to be a rational scientific approach to food allergy treatment. There is, however, no study demonstrating that variations in the concentrations of allergenic proteins during OIT are a cause of treatment-associated adverse events (AEs).

Methods: Retrospective record review of patients receiving OIT according to the North Texas IRB. OIT was administered according to modifications of previously reported protocols.

Results: 862 food allergic patients have been treated with eighteen different commercially available foods. For two foods, a single product was used for desensitization. Eight foods routinely used two different products. Five foods used three products and these foods used more than three products. With the notable exception of wheat, OIT AEs were not associated with changes in food product.

Conclusions: The only common factor among the different products is an equivalent total protein content based on the USDA Nutrient Database. If product variations don’t cause AEs, then the clinical impact of variations between different samples of the same food is trivial and don’t make a difference. OIT product standardization solves a theoretical problem that doesn’t exist in the real world. Requiring OIT product consistency will increase costs and postpone the availability of treatment. It is theoretically possible that variability in the foods used for OIT may provide a more appropriate desensitization reflectance of the foods that may be encountered by desensitized patients.

INTRODUCTION

• Desensitization by oral immunotherapy is effective for most patients.
• Allergy to many different foods has been successfully treated with OIT.
• Concerns have been expressed that foods are biosimilar products, they are subject to natural variations in protein content due to growing conditions and processing methods. Therefore, foods used for OIT should be “standardized.”
• The only currently available “standardized” food was developed over more than ten years at a cost of hundreds of millions of dollars.
• Clinical experience demonstrates that standard, off-the-shelf food is satisfactory for OIT treatment.

METHODS

• Retrospective record review of patients receiving food oral immunotherapy at the Dallas Food Allergy Center (Allergy Partners of North Texas).
• The record review was approved by the North Texas IRB.
• Food OIT was administered according to previously reported protocols or modifications of those protocols.
• One patient was pretreated with omalizumab. No other medications were used for food OIT pretreatment.
• All food preparations were made from commercially available food products.

ABSTRACT

Fighting Food Allergy With Food: Eleven-Year Experience With Oral Immunotherapy For Food Allergy (OIT)

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Subjects

• Foods Used For Oral Immunotherapy

<table>
<thead>
<tr>
<th>Foods Used for OIT</th>
<th>Patients Treated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peanut</td>
<td>140</td>
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<tr>
<td>Egg</td>
<td>111</td>
</tr>
<tr>
<td>Milk</td>
<td>100</td>
</tr>
<tr>
<td>Sesame</td>
<td>61</td>
</tr>
<tr>
<td>Peanuts</td>
<td>45</td>
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<tr>
<td>Cashews</td>
<td>20</td>
</tr>
<tr>
<td>Wheat</td>
<td>12</td>
</tr>
<tr>
<td>Sunflower seed</td>
<td>3</td>
</tr>
<tr>
<td>Chickpeas</td>
<td>2</td>
</tr>
<tr>
<td>Sunflower oil</td>
<td>1</td>
</tr>
<tr>
<td>Rapeseed</td>
<td>1</td>
</tr>
<tr>
<td>Sesame products</td>
<td>1</td>
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</tbody>
</table>

• The initial protocols were based on common eliciting doses for peanut and milk.
• As patients requested desensitization to additional foods, protocols for nuts and seeds were derived from the peanut protocol and protocols for other foods were derived from the milk protocol.
• OIT foods are considered equivalent based on their protein concentration standardization.

• Desensitization to allergenic foods by oral immunotherapy is effective for most patients commercially available, off-the-shelf food is safe and effective for the treatment of food allergy.
• Protein concentrations, determined by the manufacturers, are sufficiently accurate to establish clinical equivalence.
• Under most circumstances, different sources of food protein may be used interchangeably as long as the allergenicity of the protein is maintained (e.g., peanut should be roasted, wheat should be unbaked).
• “Baking cousins” allergy is of clinical importance for OIT (e.g., baked wheat).
• Because of taste aversion and boredom, it is important to be able to use several foods during OIT to maintain adherence.
• So called “standardized foods” are a solution in search of a problem.

CONCLUSIONS

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Results

Desensitization Rate By Food

Patients Treated With 1, 2 or 3/3+ Foods

76 patients 58 patients

Number Of Patients Treated With Each Food

No single food 2 foods 3 or more foods