

Conducting an Oral Food Challenge to Peanut in an Infant



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Results from the Learning Early About Peanut trial and its follow-up study suggest that early peanut introduction in the diets of high-risk infants may prevent the development of peanut allergy. Allergy organizations around the world released a unified statement, the Consensus Communication on Early Peanut Introduction and the Prevention of Peanut Allergy in High Risk Infants, in response to results from the Learning Early About Peanut trial, which recommends early introduction of peanut into the diet of those children at greatest risk of development of peanut allergy. As a result, it is expected that practicing allergists will experience an increased demand to perform an oral food challenge (OFC) in infants. Allergists often perform OFCs; however, conducting an OFC in an infant creates unique circumstances that have not been considered in previously published OFC guideline documents. The purpose of this

workgroup report is to provide guidance to practitioners regarding the proper approach for conducting a peanut challenge in an infant. © 2016 American Academy of Allergy, Asthma & Immunology (J Allergy Clin Immunol Pract 2017;5:301-11)

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The recently released Consensus Communication on Early Peanut Introduction and the Prevention of Peanut Allergy in High-Risk Infants strongly recommends introducing peanut products into the diets of high-risk infants.¹ These recommendations are based on results of the Learning Early About Peanut (LEAP) trial, a large single-center clinical trial performed by food allergy experts in an academic children's hospital setting in which

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with Rady Children's Hospital, has received one or more payments for lecturing from or is on the speakers' bureau for the Allergy & Asthma Medical Group, and was site investigator for sponsored trials for Aimmune and DBV Technologies. A. H. Nowak-Wegrzyn is Chair of the Medical Advisory Board for International FPIES Association and member of the data monitoring committee for Merck; is employed by Icahn School of Medicine; has received one or more grants from or has one or more grants pending with Immune Tolerance Network, FARE, DBV Technologies, Nestle, and Nutricia; has received one or more payments for lecturing from or is on the speakers' bureau for ThermoFisher and Nestle; has received royalties from UpToDate; and has received one or more payments for the development of educational presentations for Annenberg. S. Sicherer has received royalties from UpToDate and is the Associate Editor of The Journal of Allergy and Clinical Immunology: In Practice. D. M. Fleischer has received travel support from the National Institute of Allergy and Infectious Diseases; is on the National Peanut Board, Food Allergy & Anaphylaxis Connection Team Medical Advisory Board, and FARE Medical Advisory Board; has received consultancy fees from LabCorp, INSYS Therapeutics Inc, and Adamis Pharmaceuticals Corporation; is employed by University Physicians Inc; has received research support from Monsanto Company, Nestle Nutrition Institute, and DBV Technologies; has received lecture fees from Nestle Nutrition Institute, Canadian Society of Allergy and Clinical Immunology, and American College of Allergy, Asthma, and Immunology; has received payment for manuscript preparation from Nestle Nutrition Institute; and receives royalties from UpToDate. C. Venter has received consultancy fees from Mead Johnson; has received research support from the National Institutes of Health; and has received lecture fees from Danone. B. Vickery is employed by and owns stock/stock options in Aimmune. The rest of the authors declare that they have no relevant conflicts of interest.

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Abbreviations used

IV- Intravenous

LEAP- Learning Early About Peanut

OFC- Oral food challenge

SPT- Skin prick test

early introduction of peanut in high-risk infants (defined as having early onset eczema and/or egg allergy) between 4 and 11 months of age was associated with a decreased risk of peanut allergy up to 5 years of age.² Although an oral food challenge (OFC) is considered the gold standard for diagnosis of food allergy regardless of age, diagnostic peanut OFCs have not been typically used in infants aged 4-11 months. It is expected that the recent consensus statement will result in an increased demand to perform diagnostic OFCs in infants, and conducting an OFC in an infant includes considerations that differ from OFCs in older children, adolescents, and adults. A workgroup from the Adverse Reactions to Foods Committee of the American Academy of Allergy, Asthma, and Immunology was formed to address this need and provide guidance in conducting OFCs in infants. The purpose of this report is to expand prior advice on conducting OFCs,³ focusing on peanut introduction in infants. Recommendations are based on available evidence and expert consensus.

INDICATIONS FOR CONDUCTING AN OFC

According to the Consensus Communication, it may be advantageous for infants with early onset (<4-6 months) atopic disease, such as severe eczema or IgE-mediated egg allergy, to introduce peanut into their diet early in life (between 4 and 11 months of age) in countries where peanut allergy is prevalent.¹ Based on the LEAP criteria, infants with severe eczema or egg allergy may benefit from consultation with an allergist or other physician experienced in the evaluation of food allergy in children if they feel support is required for introduction of peanut into the diet.² Such an evaluation “might consist of performing peanut skin testing [and/or] an in-office observed peanut ingestion [office-supervised feed], as deemed appropriate after a discussion with the family. The clinician can perform an observed peanut challenge for those with evidence of a positive peanut skin test response to determine whether they are clinically reactive before initiating at-home peanut introduction.”¹

The Consensus Statement does not provide guidance as to which children should be considered for an office-supervised feed versus observed peanut challenge versus recommending continued avoidance. Further advice will be forthcoming from the National Institute of Allergy and Infectious Diseases (NIAID) and falls outside of the scope of this workgroup report.

SAFETY CONSIDERATIONS BEFORE STARTING THE CHALLENGE

An observed challenge, whether to food, drug, or venom, is a practice typically reserved for the practicing allergist, and is considered a safe procedure when performed in the appropriate patient and setting. There have been no reported deaths from OFCs in the literature indexed since 1976 in PubMed; however, anaphylaxis is potentially life threatening and precautions should be taken to minimize risks. Physicians undertaking OFCs in

TABLE I. Medication discontinuation considerations before OFC^{3,23}

Medication	Last dose before OFC
Cetirizine	5 d
Cyproheptadine	10 d
Diphenhydramine	3 d
Fexofenadine	3 d
Loratadine	7 d
Short-acting bronchodilator (eg, albuterol)	8 h
Oral/intramuscular/intravenous steroids*	3 d to 2 wk
Medications that may be continued	
Inhaled/intranasal corticosteroids	
Topical steroids	
Topical pimecrolimus, tacrolimus	

OFC, Oral food challenge.

*This suggested guideline is based on the concern regarding the potential for suppression of the late-phase response. In addition, the patient who receives a short course of systemic corticosteroid may have a concomitant illness that could either interfere with interpretation of the OFC or potentially worsen the severity of a reaction. If a patient receives chronic therapy with systemic steroids for any reason, the risk vs benefit for stopping steroid therapy and substituting an alternative therapeutic agent or performing the OFC while the patient remains on steroid therapy should be evaluated on an individual basis.³

infants should be comfortable recognizing and treating allergic reactions and anaphylaxis in this age group. To reduce the likelihood of a severe adverse outcome, it is important to consider the following precautions especially for infants with a positive skin prick test (SPT) who may be at an increased risk of reacting during the OFC.

1. Perform the challenge in a monitored setting. A physician or a nurse under a physician's supervision should monitor the patient throughout the OFC. Providers should be experienced in the evaluation and management of anaphylaxis in children.
2. Medications that may interfere with interpretation of the OFC should be discontinued, as outlined in Table I.

TABLE II. Emergency medications for infants

Medication	Dose
Epinephrine (1:1000 concentration)	0.01 mg/kg IM in the mid-outer thigh in health care settings OR 0.15 mg autoinjector IM in the mid-outer thigh in community settings ⁴
Albuterol nebulization	0.15 mg/kg every 20 min × 3 doses (minimum of 2.5 mg per dose) over 5-15 min
Albuterol MDI inhalation	2 puffs, 90 mcg/puff, with face mask
Oxygen	8-10 L/min via face mask
Diphenhydramine	1.25 mg/kg/dose PO/IM/IV
Cetirizine	2.5 mg PO
Normal saline (0.9% isotonic solution) or lactated ringers	20 mL/kg/dose administered over 5 min
Steroids	Prednisolone 1 mg/kg PO OR Solu-Medrol 1 mg/kg IV

IM, Intramuscular; IV, intravenous; MDI, metered-dose inhaler; PO, by mouth.

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