

Efficacy and safety of allergen immunotherapy for IgE-mediated food allergy: systematic review and meta-analysis

Debra de Silva¹, Pablo Rodriguez del Rio², Nicolette w Jong³, Ekaterina Khaleva⁴, C. Singh⁵, Anna Nowak-Wegrzyn⁶, Antonella Muraro⁷, Philippe Bégin⁸, Giovanni Pajno⁹, Alessandro Fiocchi¹⁰, Angel Sanchez San¹¹, Carla Jones¹², Caroline Nilsson¹³, Carsten Bindslev-Jensen¹⁴, Gary Wong¹⁵, Hugh Sampson¹⁶, Kirsten Beyer¹⁷, Mary Jane Marchisotto¹⁸, Montserrat Fernandez-Rivas¹⁹, Rosan Meyer²⁰, Susanne Lau¹⁷, Ulugbek Nurmatov²¹, and Graham Roberts⁴

¹The Evidence Centre England

²Hospital Infantil Universitario Nino Jesus

³University Medical Centre Rotterdam the Netherlands

⁴University of Southampton Faculty of Medicine

⁵The Evidence Centre New Zealand

⁶NYU Langone Health

⁷Padua University Hospital Italy

⁸Universite de Montreal Canada

⁹Policlinico Hospital-University of Messina Italy

¹⁰Ospedale Pediatrico Bambino Gesù

¹¹AEPNAA Spanish Association for People with Food and Latex Allergy Spain

¹²Allergy UK England

¹³Karolinska Institutet and Sachs' Children and Youth Hospital Sweden

¹⁴Odense Universitetshospital

¹⁵Chinese University of Hong Kong Hong Kong

¹⁶Icahn School of Medicine at Mount Sinai Department of Medicine

¹⁷Charite Universitätsmedizin Berlin

¹⁸European Academy of Allergy and Clinical Immunology

¹⁹Hospital Clínico San Carlos Spain

²⁰Imperial College London

²¹Cardiff University

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Abstract

Background There is substantial interest in allergen-specific immunotherapy in food allergy. We systematically reviewed its efficacy and safety. **Methods** We searched six bibliographic databases from 1946 to 30 April 2021 for randomised controlled trials about immunotherapy alone or with biologicals in IgE-mediated food allergy confirmed by oral food challenge. We pooled the data using random-effects meta-analysis. **Results** We included 36 trials with 2,126 participants, mainly children. Oral immunotherapy increased tolerance whilst on therapy for peanut (RR 9.9, 95% CI 4.5. to 21.4, high certainty); cow's milk (RR 5.7, 1.9 to 16.7, moderate certainty) and hen's egg allergy (RR 8.9, 4.4 to 18, moderate certainty). The number needed to treat

to increase tolerance to a single dose of 300mg or 1000mg peanut protein was 2. In peanut allergy, oral immunotherapy did not increase adverse reactions (RR 1.1, 1.0 to 1.2, low certainty) or severe reactions (RR 1.6, 0.7 to 3.5, low certainty). It may increase adverse reactions in cow's milk (RR 3.9, 2.1 to 7.5, low certainty) and hen's egg allergy (RR 7.0, 2.4 to 19.8, moderate certainty), but reactions tended to be mild and gastrointestinal. Epicutaneous immunotherapy increased tolerance whilst on therapy for peanut (RR 2.6, 1.8 to 3.8, moderate certainty). Results were unclear for other allergies and administration routes. Conclusions Oral immunotherapy improves tolerance whilst on therapy and is probably safe in peanut, cow's milk and hen's egg allergy. However, our review found little about whether this improves quality of life, is sustained or cost-effective.

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