Delivering Egg Ladder Therapy Through Telemedicine: A Retrospective Review of Appointment Patterns

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Abstract

Background: Egg allergy is one of the most common food allergies in childhood and a leading cause of food-induced anaphylaxis, affecting up to 9% of children(1,2). Although many children develop tolerance, resolution may occur later than previously expected(3), prolonging the burden of dietary avoidance and anaphylaxis preparedness for families(4). Dietary advancement therapy (DAT) has emerged as a strategy to actively promote tolerance while maintaining safety. In Ireland, DAT for IgE-mediated egg allergy is delivered using the Irish Food Allergy Network (IFAN) Egg Ladder(5), a standardized protocol involving stepwise introduction of egg in progressively less-heated forms, with demonstrated safety and effectiveness(6–8). Telemedicine has become an integral component of pediatric allergy services, enabling remote monitoring and support during Egg Ladder progression. In parallel with the expansion of telemedicine-supported care, specialist allergy dietitians contribute structured education, nutritional assessment, and practical guidance to support safe dietary advancement within a multidisciplinary, hybrid model. As pediatric allergy services continue to evolve, understanding how such models function in real-world practice is increasingly important.

Method: A retrospective chart review was conducted of children with IgE-mediated egg allergy who attended the Cork University Hospital paediatric allergy service between 2021 and 2024 and completed the IFAN Egg Ladder. Inclusion criteria were age under three years and documented egg sensitisation confirmed by skin prick testing or serum-specific IgE. Patients with incomplete data, defined as missing any variables required for the study, were excluded. Descriptive statistical analyses were performed using SPSS version 29.

Results: Fifty-nine patients met inclusion criteria. The cohort was predominantly male (57.6%, n = 34). Atopic comorbidities included atopic dermatitis (49.2%, n = 29), asthma (5.1%, n = 3), and allergic rhinitis (1.6%, n = 1). Coexisting food allergies were common, including cow's milk protein allergy (22.0%, n = 13), peanut allergy (11.9%, n = 7), and other food allergies (10.2%, n = 6). The mean age at diagnosis was 15.1 months (95% CI 13.45–16.79). The mean duration of Egg Ladder therapy was 18.4 months (95% CI 16.67–20.07), with 88.3% of patients completing treatment (n = 53). Patients attended a mean of 4.10 appointments (95% CI 3.61–4.59) during ladder progression. Thirty-seven patients (62.7%) attended at least one dietitian appointment, with a mean of 1.02 dietitian-led visits (95% CI 0.69–1.35). The mean number of in-person appointments was 1.64 (95% CI 1.43–1.85), and the average interval between appointments was 6.34 months (95% CI 5.57–7.11).

Conclusions: In this retrospective review, children undergoing Egg Ladder therapy required relatively few in-person visits, with most follow-up delivered through telemedicine and supported by dietitian involvement. High treatment completion rates were observed, suggesting that a multidisciplinary, telemedicine-supported model is feasible for delivering dietary advancement therapy in early childhood egg allergy. These findings support the continued integration of telemedicine and dietitian-led care within paediatric allergy services and highlight the value of appointment-level data in informing service planning and resource allocation.