Evaluation of using an adrenaline in children during an oral food challenge
Ekaterina Khaleva\(^1\), Ana Prieto del Prado\(^1\), George Du Toit\(^{1,2}\)
\(^1\)Guy’s and St Thomas’ NHS Foundation Trust, London, United Kingdom; \(^2\)King’s College London, United Kingdom

**Aims:** Oral food challenges (OFC) are the gold standard for the diagnosis of food allergy. They are also the method of choice to assess the resolution of food allergies. In clinical practice, most centres use open OFC for diagnostic purposes. OFC’s are logistically demanding and not without risk. It has therefore been suggested that between 30-40% of OFC’s should result in a positive challenge; of these positive reactions only a few should result in anaphylaxis requiring treatment with adrenaline. The aim of this study was to study in detail the clinical characteristics of anaphylaxis and time after first exposure to first symptoms in comparison with allergic background of the child.

**Methods:** A chart review study of 3979 patients undergoing the food challenge was conducted at tertiary Allergy Centre. We identified all patients for whom adrenaline was administered for food-induced anaphylaxis between 2008-2016 year and analyzed demographic characteristics such as age, gender, type of food given in the challenge, time after first exposure to first symptoms, treatment required, skin prick test, specific IgE and allergic co-morbidities.

**Results:** 32 patients had anaphylaxis for which adrenaline administration was required. Of the patients who developed these severe symptoms, 22 (68,75%) males and 10 (31,25%) females, median age was 4,9 years. Six (18,75%) of these reactions occurred to cow’s milk of which 4 (66,6%) were to baked milk and 2 (33,4%) to fresh milk. Ten (31,25%) children reaction to nuts, 1 (3,13%) to soya, 3 (9,38%) to egg, 4 (12,5%) to sesame, 4 (12,5%) children to wheat. Children, who were allergic to nuts reacted sooner after exposure than that recorded for other foods. The most common co-morbidities were other food allergies in 23 cases (71,9%), 17 (53,2%) with eczema, 10 (31,3%) with asthma , 7 (21,9%) with allergic rhinitis. Of those children for whom adrenaline was administered, five required repeat adrenaline administration.

**Conclusion:** This audit reveals that anaphylaxis during OFC’s in a bust tertiary Allergy Centre seldom results in the need for adrenaline administration for the treatment of allergic reactions. However, all foods are capable of producing anaphylaxis in this setting of which milk was the commonest cause. Reactions can occur soon after allergen exposure, especially when the challenge is undertaken to nuts. It is difficult to predict who is most at risk for severe allergic reactions; all children in this audit had allergic co-morbidities and food allergy was the most frequent one. Children who have both asthma and a food allergy are at greater risk for anaphylaxis. Severe reactions requiring treatment with adrenaline was common, but few children required multiple doses of adrenaline. OFC’s, which serve as the gold standard diagnostic modality are generally safe but severe reactions do rarely occur for which adrenaline treatment is required.