

Editorial



Can sIgE Levels to Food Allergens Predict Food-induced Anaphylaxis in Infants?

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► See the article “Infantile Anaphylaxis in Korea: a Multicenter Retrospective Case Study” in volume 34, number 13, e106.

Anaphylaxis is the most serious allergic reaction that is rapid in onset and may cause death. The average overall prevalence of anaphylaxis was 26.23 per 100,000 person-year between 2010 and 2014, and the mean crude prevalence in children under 24 months of age was 22.3.¹ However, the true rate of anaphylaxis in infants is not well known because of under-recognition and under-diagnosis due to age-unique ambiguous symptoms.

In the current issue of *Journal of Korean Medical Science*, Jeon et al.² and Food Allergy and Atopic Dermatitis Study Group in the Korean Academy of Pediatric Allergy and Respiratory Disease demonstrated clinical characteristics of 363 infants diagnosed with anaphylaxis between 2009 and 2013. The authors demonstrated strikingly increasing prevalence of anaphylaxis in infants, with the number of cases nearly quadrupling during the study period. It is due to the increasing number of food allergy in infants and intense awareness of it by parents or caregivers. Thus, there has been increasing concerns about anaphylaxis particularly in this age group because of their vague symptoms and high risk of hospitalization.

To date, drugs and insect stings are the most common anaphylaxis triggers in adults but foods are the most common triggers in children. Further, the food-induced anaphylaxis cases are more common in the younger age group. Jeon et al.² also showed that over 90% of infantile anaphylaxis was triggered by food followed by drug and insect bite. In accordance with previous epidemiologic data,³ cow's milk, hen's egg, nuts and fish are the predominant food triggers in their study.

Diagnosis of anaphylaxis depends on recognition of characteristic symptoms and signs that occur immediately after exposure to a trigger. It is required to take a meticulous history of the episode with sudden onset and rapid progression of symptoms and signs involving respiratory, cardiovascular, gastrointestinal and skin systems for the exact diagnosis of anaphylaxis. The double-blind, placebo-controlled food challenge (DBPCFC) is recognized as the gold standard for the accurate diagnosis of food allergy but it is difficult to perform this challenge test in such young infants. Quantification of food-specific immunoglobulin E (sIgE) using ImmunoCAP system has similar sensitivities and specificities in the diagnosis of food allergy as well.⁴ Thus, ImmunoCAP was the most frequently performed diagnostic test to confirm anaphylaxis trigger. It provided increased positive predictive accuracies for egg, milk, peanut, and fish hypersensitivity compared to DBPCFC. A patient with a sIgE to food allergen greater than the ‘95% decision points (DDP)’ may be considered reactive and

an oral food challenge would not be needed for further confirmation.⁴ Instead of DBPCFC, DDP values of sIgE have been used in clinical settings for the diagnosis and monitoring of food-induced anaphylaxis in Korea as well. In this Jeon et al.'s study,² the serum sIgE levels to hen's egg using ImmunoCAP were related to the anaphylaxis symptoms to hens' egg; however, those of cow's milk were not. In contrast to a good correlation between hen's egg sIgE and anaphylaxis, sIgE levels to cow's milk did not correlate with anaphylaxis well. They showed over 90% of anaphylaxis patients under 24-months-old and all of the patients over 2-years-old showed sIgE to hen's egg greater than DDP. However, less than half of the cow's milk-induced anaphylaxis cases showed sIgE levels greater than the value of DDP. Thus, about half of the cow's milk anaphylaxis patients developed the anaphylaxis symptoms in values less than the value of DDP. Clinicians should be aware of increasing prevalence of food-induced anaphylaxis in infants and difficult to predict anaphylaxis to cow's milk by sIgE levels.

Anaphylaxis is a life-threatening medical emergency in which prompt initial treatment is critical. According to the guidelines proposed by the World Allergy Organization,⁴ epinephrine is the medication of first choice in anaphylaxis because it is the only medication that reduces hospitalization and death. However, epinephrine is significantly less likely to be injected in food-induced anaphylaxis than in venom-induced anaphylaxis. In this study of Jeon et al.,² 46.8% of the anaphylaxis patients treated with epinephrine injection. Furthermore, only 25.1% of the cases had a prescription of epinephrine auto-injector. Early injection of epinephrine in anaphylaxis, defined as injection before emergency department arrival, can significantly reduce the likelihood of hospital admission, as compared with initial injection after emergency department arrival.⁵

In conclusion, the prevalence of anaphylaxis in young children is remarkably increasing in Korea and most of the symptoms are triggered by food allergens. The nationwide incidence of infantile anaphylaxis should be monitored to determine exact incidence and proper management. Clinicians should be aware of that anaphylaxis symptoms can occur under the DDP value of sIgE to cow's milk allergen. The prescription rate of epinephrine auto-injector among anaphylaxis patients under 2-years-old was quietly low despite remarkably high increase of anaphylaxis prevalence. More emphasis is needed on prompt recognition and appropriate treatment of anaphylaxis by healthcare professionals.

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