RESEARCH UPDATE

Biphasic Anaphylaxis in Children: Watch for a delayed second reaction

By Frank J. Twarog, MD, PhD

Some people who experience anaphylaxis develop a second round of severe symptoms after the initial event. This is referred to as biphasic anaphylaxis. It can occur up to many hours later, without further exposure to the allergen that caused the initial reaction.

A large study of biphasic anaphylactic reactions in children was carried out at two academic hospital emergency departments in Canada. They reviewed the records of 484 visits, and found that 71 (almost 15%) met the criteria for having had a biphasic reaction.

The majority (66%) of these reactions were caused by food. Typical foods involved were peanut (25.4%), tree nuts (16.9%), milk (7%), egg (7%), and seafood (9.6%). Reactions to medications, exercise, and bee stings were less frequent. As has been the case in most studies on anaphylaxis, the cause of a significant proportion (21%) was not identified.

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AAFA ADVOCACY

People with allergies should have public access to life-saving medication

By Paul Antico

“When I was growing up, I never heard of anyone having food allergies.”

To those of us in the food allergy community, that comment is one we’ve all heard many times. Some adults unfamiliar with food allergies wonder if they are the latest passing fad. Or they question whether food allergies are just another issue for helicopter parents to overly concern themselves with. And besides, what’s the big deal? A little rash, some hives or sniffles – take an antihistamine!

Yet, for many of those suffering with food allergies, like three of my five children, the concerns are much more serious. Rashes, hives, and sniffles would be a welcome response. Unfortunately, my wife and I need to live with daily fear that if our children are unknowingly exposed to their food allergens

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Biphasic anaphylaxis (continued)

The second phase reactions occurred between 4.7 and 18.5 hours after the first. Approximately 75% of these reactions, however, occurred within six hours. The majority (approximately 72%) of those who had biphasic reactions were boys. Patients’ ages ranged from 2.7 to 10.1 years (mean 6 years).

Most often, children had respiratory and skin symptoms. Forty-five percent had a history of asthma and 71% had a history of atopic dermatitis (eczema). Surprisingly, 70% of these reactions occurred at home, 14% in school or a day-care center, and only 7% at restaurants. Only 59% of parents carried epinephrine auto-injectors.

Factors associated with biphasic reactions included a delay in initial treatment, need for more than one dose of epinephrine, and use of inhaled beta-adrenergic agents in the emergency department (e.g., albuterol). Administration of steroids did not seem to prevent biphasic reactions. A delay in receiving prompt epinephrine treatment seemed more important in predicting biphasic reactions.

Other studies have identified biphasic reactions in from 6 to 11% of cases of anaphylaxis. A German study suggested associated risk factors, such as infection, psychological stress, and menstrual periods as contributing to biphasic reaction in up to 18% of patients.

The new Canadian study indicates that children who meet the criteria for risk of biphasic reactions (e.g., between the ages of 6 to 9 who did not receive epinephrine promptly after an allergic reaction began, required a second dose, and experienced severe respiratory symptoms) should be observed for a more prolonged period in the emergency department. The ideal duration of observation remains debatable, but at least six hours would be suggested by these data.


Important reminder:
Prepare for and avoid the possibility of a biphasic reaction by always carrying two doses of epinephrine and using it promptly if a reaction develops.

Oral immunotherapy for respiratory allergy: Reviewing the benefits

There has recently been a significant increase in interest regarding sublingual immunotherapy for respiratory allergies. This oral treatment was introduced a number of years ago in Europe but has only recently become available in the United States. It remains clear that the older approach of subcutaneous injection is more effective, however.

The attractiveness of sublingual treatment is obvious. It avoids the need for frequent physician visits, waiting in the office for a period of time after injection, and also obviates the discomfort of injection therapy. Safety of the sublingual treatment also is a bonus, since anaphylaxis appears quite rare in the reported studies.

Extracts for sublingual treatment now include grass, ragweed, and mites. Tree pollen, unfortunately, is not yet available. Other issues which remain unclear are co-administration of several allergens, since most studies have included only single-allergen treatment.

For those who have only limited sensitivity, the sublingual approach is certainly an option at this time. A recent review discusses the data and experience with sublingual immunotherapy (SLIT) in Italy. Studies cited in this review reported a 21% reduction in symptoms and 28% decrease in medication use with grass tablets.

Similarly, there was a 24% to 27% reduction in symptoms with ragweed tablets. But results with dust mite SLIT are “less impressive.”

In contrast, a systematic review and meta-analysis of grass pollen SLIT, also from Italy, suggested that there is only a small benefit using grass pollen tablets to reduce allergic rhinitis. Comparing data from 13 controlled trials including nearly 5,000 patients showed only a slight decrease in medication use among those treated.

A smaller study of dust mite SLIT from South Africa found that greater than 60% of individuals reported a decrease in symptoms and improvement in quality of life using this treatment. Additionally, they found significant changes in a variety

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AAFA New England

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For upcoming meeting dates and topics:
visit our website (www.asthmaandallergies.org) or call 781-444-7778.

To receive support group program announcements, send your e-mail address and your location to aafane@aafane.org.

METRO-BOSTON ALLERGY & ASTHMA SUPPORT GROUP
Newton, MA
Meets at Newton-Wellesley Hospital, 2014 Washington St. (Rt. 16)

NORTHWEST SUBURBAN BOSTON AREA SUPPORT GROUP - Lexington, MA
Meets at Beth Israel and Children’s Hospital Medical Care Center, 482 Bedford St.

FOOD ALLERGY GROUP OF THE NORTH SHORE
Salem, MA
Meets at Salem Hospital, 81 Highland Ave. (Davenport Conference Area)

METRO-WEST ALLERGY & ASTHMA SUPPORT GROUP
Framingham, MA
Meets at Allergy & Asthma Treatment Specialists, 475 Franklin St., Suite 206

MERRIMACK VALLEY ASTHMA & ALLERGY SUPPORT GROUP
New location to be announced

PIONEER VALLEY FOOD ALLERGY SUPPORT
Ludlow, MA
Meets at St. John the Baptist Pastoral Center, 201 Hubbard St.

SHORESIDE ASTHMA & ALLERGY EDUCATIONAL SUPPORT GROUP
New location to be confirmed

CAPE COD ASTHMA & ALLERGY GROUP
Yarmouth Port, MA
Meets at Allergy & Asthma Center for Cape Cod, 244 Willow St.

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of immunologic parameters, suggesting an immune response to the sublingual treatment.\(^3\)

Clearly, there is still much to be learned regarding the role of SLIT in the treatment of allergic patients. Whether it will replace or supplement standard subcutaneous immunotherapy (SCIT) remains unclear. More studies concerning efficacy and expansion of the available allergens will be welcome.


Frank J. Twarog, M.D., Ph.D., is an allergist in Brookline and Concord, MA, and Clinical Professor at Harvard Medical School.
**Food Allergy Management Priorities Every School Should Address**

by Gina Mennett Lee

Children spend the bulk of their waking hours at school. This makes it vitally important that schools be a space where all children can be safe, nurtured and allowed to grow as learners and as people.

The U.S. Centers for Disease Control last year published *Voluntary Guidelines for Managing Food Allergies in Schools and Early Care and Education Programs*, which serve as a roadmap to effective policies.* Here are the five top priorities identified by the CDC, and some additional insights and tips.

**Priority One: Ensure the daily management of food allergies for individual children**

The first step is having a process in place to identify the children with food allergy and develop an individual plan to accommodate them in the school setting. This plan should include not only the Emergency Care Plan (ECP) developed by the child’s doctor, but also specific measures to prevent reactions and ensure that the child is fully included in all school activities. It may be in the form of an individualized Health Care Plan (HCP) or a 504 Plan, which should be written and mutually agreed upon by key stakeholders (e.g., parents/guardians, school nurse, principal, classroom teacher(s) and other staff members, and the child if age-appropriate). The goal is to create a safe learning environment and to support and guide the child towards effective independent self-management and self-advocacy.

**Priority Two: Prepare for food allergy emergencies**

The components that should be in place to meet this goal include:

*Easy-to-use communication systems:* These may include a landline phone in the classroom and a cell phone or walkie-talkie while at recess or on the bus. The important thing is that emergency communication systems are in place in all settings throughout the school day.

*Easy/quick access to epinephrine:* This is critical, as the deaths in schools related to food allergy have been due to a delay or lack of administration of epinephrine. 

_Epinephrine must be used promptly when needed_ and emergency medical services immediately contacted. 

_All members of the school staff should be trained_ to identify and respond to allergic reactions and know their role in a medical emergency. 

This should be practiced before an emergency occurs, much like a fire drill.

*A plan should be in place for children without prior history of anaphylaxis.* Twenty to twenty-five percent of epinephrine use in schools is for those without a prior history of anaphylaxis. 

_A system should be in place to document what happened each time a reaction occurs._ The process should include identifying the trigger, assessing the current policies and practices and the child’s accommodation plan, and making changes, if necessary.

**Priority Three: Train staff on how to manage food allergies and respond to reactions**

This should include “general training for all staff, in-depth training for staff with frequent contact,” and “specialized training for staff managing health on a daily basis.” **

**Priority Four: Educate children and family members about food allergies.**

It is important that all children, their parents and others in the school community understand the need for certain precautions. Hopefully this will foster both cooperation and empathy. There are many great resources to help with this,**  A multi-tiered approach could include: hanging awareness posters and signs in the school; making books appropriate for adults and various ages of children available in the school or classroom libraries; letters home to parents; and informational sessions through the PTA or at times when most parents are present such as back-to-school night.

**Priority Five: Create and maintain a healthy and safe educational environment.**

The CDC guidelines include an excellent summary of prevention strategies, some of which should be specific to the child and developed through an individualized written plan and others should be implemented school-wide. Some highlights:

*Maintain allergen-free classrooms:* Contrary to what most people might assume, the vast majority of allergic reactions requiring epinephrine

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*Gina Mennett Lee, M.Ed. is a consultant and educator specializing in the management of food allergies in the school setting. She is a former elementary and middle school teacher and a trained principal. More information and resources can be found on her website, www.FoodAllergyConsulting.com. She is co-author of the Preschool Food Allergy Handbook (available on Amazon.com).*
actually begin in the classroom (45%), while only 14% begin in the lunch room. Allowing allergens into the classroom (whether to be eaten or used as curriculum materials) not only increases the risk of an allergic reaction for children but also can have a negative emotional impact by leading to exclusion and bullying.

Use non-food rewards and celebrations: For general health and safety reasons it is important to move away from the practice of using food as a reward or celebration.**

Understand proper food handling procedures to prevent cross contact. This applies not only to the lunchroom but also any place where food is prepared and/or served.

Make outside groups aware of rules when using the building before and/or after school. Posting signs can be an effective measure.

Create a positive psychosocial climate that reduces bullying and social isolation and promotes acceptance and understanding.

This begins with educating school staff. Parents, students and other staff members take their cues from those in leadership positions. It is important that people in these positions be thoughtful with their words and their actions when discussing food allergy management. For example, instead of stating “We can no longer serve cupcakes in class due to children with food allergies,” a better option would be to say “We are using non-food rewards to reinforce good health habits and to ensure that all of our students are safe at school.”

Creating an effective food allergy management and prevention plan is a process that requires advance planning and ongoing assessment. With proper leadership and compassionate hearts, children with food allergies can have an equal opportunity to succeed at school.

We asked a few teens for their reaction to the book. Among the comments we received:

“It happened to me...Food Allergies” is a great resource for teens with food allergies. The author addresses important topics such as eating out and dating. These have been challenges for me and it is good for teens to have a place to get answers to these types of questions. Every teen should read it! -Brett Nasuti

This is a good compilation of tips that saves a fair amount of research, especially for the newly diagnosed. Some of the author’s well-intentioned motivational remarks may feel patronizing to older teens, yet the book also addresses adult subject matter such as health insurance. -Jeremy Francoeur

Since the cover price can be rather steep for individuals, it would be a good idea to ask your public and school libraries to make this valuable resource available.

**The CDC guidelines plus additional information and tools can be found at: http://www.cdc.gov/healthyschools/foodallergies. Some states, such as Connecticut and Massachusetts, have issued their own guidelines for managing food allergies in schools.

** There are many excellent resources and materials to teach children, school staff and other members of the school community about food allergy management. For lists and links, visit our website (www.asthmaandallergies.org - see “Managing Food Allergies in Schools and Pre-schools”), and the author’s website: www.FoodAllergyConsulting.com.
the result may be anaphylaxis – an unpredictable, life-threatening allergic reaction with rapid-onset symptoms that can eventually lead to death.

We are not alone in that fear. For reasons yet unknown, food allergies are experiencing a tremendous growth in the U.S. and other areas around the world. Currently, an estimated one in 25 Americans – including one in 13 children – lives their life with one or more food allergies. That equates to roughly 270,000 Massachusetts residents, over 100,000 of whom are our children! And still others are as yet unaware they have a food allergy.

For families like ours, the life saver is called epinephrine. When a severe allergic reaction occurs with symptoms that could lead to anaphylactic shock, the first line of defense is an injection of epinephrine – an emergency medication that can bring bodily systems under control. If symptoms develop, such as swelling or hives, it could be just a few minutes before anaphylaxis begins. The medical community estimates the condition begins within three minutes and can progress to death in less than half an hour.

As I mentioned earlier, mistakes sometimes happen and a food-allergic individual’s epinephrine gets left behind. In addition, we see new reactions by people previously undiagnosed – adults as well as children – every day. The passage of this legislation will provide another layer of protection in the drive to keep those with food allergies safe and alive.

As a parent, I’ve spent a good part of my life raising awareness about food allergies and advocating for those families and children, including my own, whose lives are affected by it. I urge you to support this bill and help protect my children and the other 270 thousand food allergy sufferers in the Commonwealth of Massachusetts.

Paul Antico
is Founder & CEO of AllergyEats.
He’s also a member of the Boards of Directors of the Asthma & Allergy Foundation of America (AAFA) and AAFA New England Chapter.

Members of AAFA New England’s Board of Directors are sharing their stories with the media and legislators to increase public awareness about the need for immediate access to epinephrine to treat a severe allergic reaction and garner support for a bill pending in the Massachusetts legislature.

This article was originally published as a Guest Editorial in The Republican (daily newspaper in Springfield, MA).

• Michele Carrick, President of AAFA New England, and Paul Antico, member of the AAFA New England Board of Directors, testified at a public hearing on the proposed Massachusetts legislation.

• Board member Mark Uzzell and his family were interviewed for a news story on Boston area TV. Watch it at: http://bit.ly/1ikrca2

Rhode Island and Maine are currently the only states in New England that have laws in place which allow various "entities" to maintain a stock of epinephrine for use in emergencies.

Contact your state legislator to explain why you believe this type of law is important.
Join us for Family Meet-Ups!

“Peanut-allergy friendly” game dates at the Pawtucket Red Sox and Lowell Spinners baseball games were great opportunities for AAFA New England area families to meet for a fun activity this summer.

Let us know your ideas for activities your family would enjoy, and whether you can help plan or run them.

We help schools, child care providers and health professionals help YOU and others manage asthma and food allergies!

“Asthma and Allergy Essentials for Child Care Providers”
That’s the title of the workshop we offer to help keep children safe and healthy when they are cared for outside of their homes. A limited amount of grant funding is available to offer the workshops free. Contact Sharon Schumack, AAFA New England’s Director of Education & Programs, to schedule a program in your area.

School nurses: Donations Available for Your Needy Students
AAFA New England can provide you with spacers and peak flow meters for teaching purposes and for use by students with asthma. We also have teaching materials and activity books.

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MC/VISA/AMEX accepted by phone or on-line at www.asthmaandallergies.org.

Please remember to ask your company for a matching contribution to AAFA NE.
Musical Lessons about Food Allergies

Kyle Dine is a performer and educator who writes songs that empower, support and educate children with food allergies and their friends.

This fall he is releasing an exciting new resource: a video with music, games and puppets to educate children about food allergies. The DVD set includes two separate videos geared to children in grades K-2 & 3-5 (ages 4-7 and 8-11) plus a teacher resource guide, worksheets and quizzes.

View a trailer of the video and four short clips at www.foodallergyvideo.com or order the DVD or any of Kyle’s CDs at www.kyledine.com. Order one for home and one for your school or library! ($25.00)

Save the date! Kyle Dine’s annual AAFA New England Concert will be on Saturday, March 12, 2016