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ANAPHYLAXIS: KNOW THE FACTS, PRESCRIBE THE TREATMENT

M*yth:* Anaphylaxis is rare. *Reality:* The incidence of anaphylaxis is on the rise, with reports of 63,000 new cases each year (1, 2). The prevalence of peanut allergy alone has doubled in children <5 years of age in the past five years (3). Nearly 11.8 million Americans are known to be at risk for anaphylaxis from various allergens, and 500 to 1000 deaths a year are caused by it (4, 5). Food-related anaphylaxis affects approximately six to eight percent of children younger than four years of age and one to two percent of adults (6). Food allergy is the leading cause of anaphylaxis treated in emergency departments in hospitals across the U.S., and accounts for about 30,000 anaphylactic reactions, 2,000 hospitalizations, and 200 deaths each year (7). The exact figures related to anaphylaxis cases are unknown, because they are likely underdiagnosed and underreported (5). It is important to note that with nearly 11.8 million individuals in the U.S. who are at risk for anaphylaxis, only 1.5 million epinephrine auto injector prescriptions are filled each year. This figure represents a staggeringly small proportion—merely 20 percent—of the at-risk population.

Anaphylaxis is an acute, life-threatening allergic reaction that can involve one or more body systems. Symptoms usually appear rapidly—within seconds or minutes—after exposure to an allergen, yet have been known to be delayed by as much as 12 hours. Many medical professionals mistakenly believe that anaphylaxis symptoms are limited to respiratory difficulties or to skin manifestations, such as hives. In fact, studies have shown that about 30 percent of individuals with anaphylaxis have no respiratory symptoms, and even fewer, up to 10 percent, have no obvious skin manifestations (8, 9). Anaphylaxis can comprise a myriad of manifestations, including oral

symptoms, such as pruritis/edema of lips, tongue and palate; cutaneous symptoms such as flushing, urticaria, and angioedema; gastrointestinal symptoms, including nausea, vomiting, and abdominal pain; or cardiovascular symptoms such as chest pain, dysrhythmia, and hypotension; and respiratory problems, including tightness in chest, dysphagia, and upper/lower airway obstruction. Some individuals will experience loss of consciousness or shock. One or several symptoms may be present, and the severity of reactions will vary from person to person. Individuals with asthma, eczema, or hay fever are at greater risk of experiencing anaphylaxis. The sooner a patient receives treatment, the better the chances of survival. Surprisingly, despite the prevalence of anaphylaxis and food allergy, most at-risk individuals are not prepared to deal with anaphylaxis. In a recent series, more than 80 percent of patients who died from allergic reactions to food had not received appropriate medication to have on hand, were not given adequate information to help avoid accidental food-induced reactions, and were not advised on how to manage them (10).

Anaphylaxis usually occurs in reaction to a particular allergen. The most commonly documented causes of anaphylaxis are due to food, medications, stinging insects, or latex, but incidents of exercise-induced and idiopathic anaphylaxis have also been reported. During an allergic reaction, histamines and other substances released into the bloodstream cause blood vessels to dilate and tissues to swell, and these chemicals trigger a cascade of allergic symptoms. Avoidance of known allergens is nearly impossible, and often many cases of food-induced anaphylaxis are due to accidental ingestion. Although the severity of a prior episode is a poor way to predict future reactions, 75 percent of people who experience

anaphylaxis will likely have another anaphylactic reaction (11). Further, individuals with a history of asthma or a previously life-threatening anaphylactic episode are more likely to have more severe episodes and poorer outcomes to treatment (12).

The treatment of choice for anaphylaxis is immediate use of an injection of epinephrine (12). Epinephrine rapidly constricts the blood vessels, relaxes the muscles in the airway and lungs, reverses swelling, and stimulates the heart-beat, thereby reversing the most dangerous effects of an anaphylactic reaction. Delays in identifying anaphylaxis and subsequent delays in administration of epinephrine have been linked to poor outcome and mortality (13, 14). Surprisingly, in as many as 35 states, basic EMTs may not be authorized to carry and administer epinephrine (15). A 2001 analysis of a national registry revealed that of 32 food-related anaphylaxis fatalities in adolescents and young adults, most of these individuals did not have epinephrine available at the time of their reaction (10).

Although epinephrine provides emergency therapy, immediate follow-up care by medical professionals is necessary to counter an anaphylactic episode. One study revealed that more than 35 percent of anaphylactic reactions were biphasic (recurrent episode without re-exposure to allergen) and required additional epinephrine injections (12). There are several secondary therapies that can be administered for the treatment of anaphylaxis

and that should be considered as part of an emergency health care plan. Antihistamines and asthma medications may be administered with epinephrine, but *never instead* of epinephrine, because they cannot reverse many of the symptoms of anaphylaxis. Because there is no way to predict the severity of a reaction or how quickly it will progress, the American Academy of Allergy, Asthma and Immunology advises that everyone with a history of allergy carry a portable epinephrine auto-injector device at all times—and should be prepared to use it (16).

There is little dispute that physicians should prescribe self-injectable epinephrine to individuals who have experienced a severe anaphylactic reaction that included respiratory distress or shock (17). What, then, should be the recommendation for those individuals with known allergy but no history of anaphylaxis, or those who may have a history of only mild symptoms after exposure to a known trigger, yet who may be at risk for anaphylaxis? In a recent perspective, Sicherer and Simons concluded that individuals experiencing respiratory or cardiovascular symptoms after exposure to a known allergen should use self-injectable epinephrine immediately. In addition, individuals experiencing an allergic reaction after exposure to a known anaphylaxis trigger—even when few or mild symptoms occur—should be instructed to err on the side of caution and inject epinephrine without delay, and that those who are at-risk for anaphylaxis (known

triggers) should have self-injectable epinephrine prescribed for use (4). Self-injectable epinephrine should always be prescribed along with an individualized emergency action plan and appropriate instruction in risk reduction.

The important consideration is that fatalities from anaphylaxis can be prevented. The immediate availability of epinephrine injections to counter anaphylaxis is vital for survival. An affected or at-risk person must be made aware of possible triggers and early warning signs, and should be familiar with what to do in case of an emergency. Optimal management of anaphylaxis is critical and can save lives.



For more information about severe allergic reactions call Dey, L.P. at 1-800-755-5560 or visit the company Web site at www.dey.com.

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