Anaphylaxis Overview: Addressing Unmet Patient Needs

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ABSTRACT

Anaphylaxis is widely recognized as a life-threatening condition, yet there is a gap between what patients know and need to know in an emergency situation. Anaphylaxis falls into a category of severe and dangerous conditions that places the supreme responsibility of symptom recognition and immediate life-saving treatment directly on the patient. Recent research illuminates that patients are unable to readily recognize the symptoms of anaphylaxis and often do not have an epinephrine autoinjector available for self-treatment. Because most anaphylactic reactions occur outside of the medical office, every possible opportunity to teach patients how to self-treat should be optimized.

Keywords: anaphylactic reaction, anaphylaxis, emergency, epinephrine, epinephrine autoinjector

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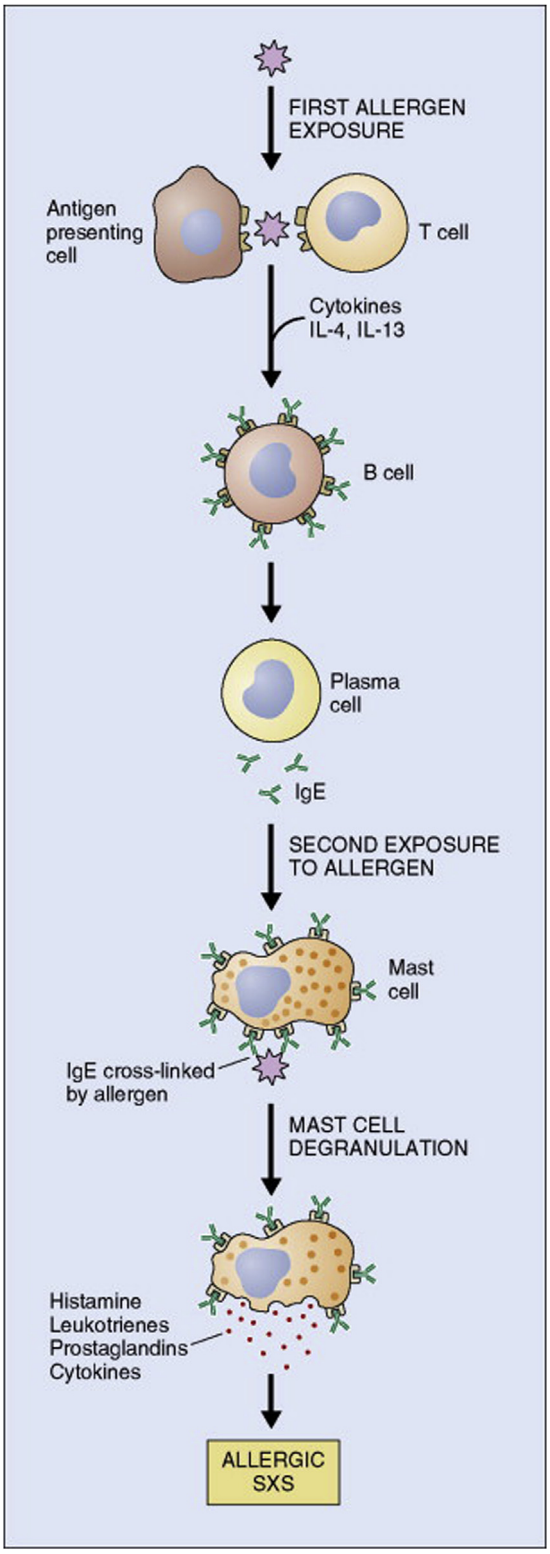
Anaphylaxis is widely recognized as a life-threatening condition, yet there is a gap between what patients know and need to know in an emergency situation. Anaphylaxis falls into a category of severe and dangerous conditions that places the supreme responsibility of symptom recognition and immediate life-saving treatment directly on the patient. The immediate use of epinephrine is first-line treatment for anapylaxis.[1] In the recent "Anaphylaxis in America" survey involving 1,059 patients who had experienced 1 or more episodes of anaphylaxis, only 42% of patients sought treatment for their symptoms within 15 minutes of onset.[2] Additionally, only 52% of patients had received a prescription for epinephrine from their health care provider, and only 40% had an epinephrine autoinjector presently available.[2] It stands to reason that patients who experience anaphylaxis as a result of a previously unidentified trigger may not recognize critical symptoms or have an epinephrine autoinjector available at the time of the reaction; however, this survey illuminated that patients with an identified risk for anaphylaxis were also unprepared. A patient's delay in self-treatment and the unavailability of an epinephrine autoinjector increases the risk for death from anaphylaxis.[1] This article discusses the diagnosis and treatment of anaphylaxis and reviews key considerations when educating patients on anaphylaxis self-management to lessen this gap.

BACKGROUND

Anaphylaxis is a type 1 allergic reaction (Figure 1) caused by an immunoglobulin E—mediated response releasing both mast cell— and basophil-derived mediators, including histamine and tryptase.[3] It is an acute, life-threatening allergic response associated with various mechanisms, triggers, clinical presentations, and levels of severity. Lifetime prevalence estimates range from 0.05% to 2% and seems to be increasing.[3] The self-reported prevalence of anaphylaxis in the general population has been estimated to be between 1.6% and 7.7%.[2] Anaphylaxis has been estimated to be fatal in 0.25%-0.33% of cases.[3] Certain individuals are more at risk for anaphylaxis than others including those who have a personal or family history of a reaction; those having venom, food, medication, or environmental allergies; or those having asthma. In the case that an individual has more than 1 of these risk factors present, their chance of experiencing anaphylaxis directly increases.

The course of anaphylaxis may follow 1 of 3 patterns: uniphasic, biphasic, or protracted. The

Figure 1. Anaphylaxis.



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vast majority of all anaphylactic reactions follow a uniphasic pattern and normally peak within 30-60 minutes after antigen exposure.[4] This type of reaction typically responds to epinephrine treatment or resolves spontaneously within 30 minutes. A biphasic reaction occurs in approximately 20% of cases and involves an initial reaction followed by an asymptomatic period and then a secondary reaction. This secondary reaction occurs despite the absence of additional exposures occurring. The third type of reaction is much less common and is called a protracted reaction. This type of reaction often lasts 4 or more days without conclusive resolution.[5] Unfortunately, there is no way to predict which pattern anaphylaxis may follow.

CAUSES OF ANAPHYLAXIS

Anaphylaxis can be provoked by essentially anything able to directly or indirectly activate mast cells or basophils and causes a sudden release of histamine in the body. This histamine release contributes to hypotension, vasodilation, a decrease of circulating blood volume, and an increase in vascular permeability and smooth muscle relaxation. Exercise and premenstrual status are cofactors in up to 33% of adult anaphylaxis cases, and alcohol is a cofactor in up to 15.2% of adult cases.[6,7] Infections are also a known cofactor and occur in 2.5%-3% of pediatric cases as well as 1.3%-11% of adult cases.[6]

Food-provoked anaphylaxis is a continued public health concern. Food allergy is the most common cause of anaphylaxis treated in the emergency department (ED).[8] In the last decade, hospital admissions for food-provoked anaphylaxis have increased more than 3-fold.[1] Food-dependent exercise-induced anaphylaxis (FDEIA) is a unique condition in which anaphylaxis develops only if physical activity occurs within a few hours after eating a specific food. FDEIA has been reported with a wide variety of foods, most commonly wheat, shellfish, tomatoes, and peanuts.[9] Someone who has eaten an allergenic food and then exercises is at risk for FDEIA. This type of reaction does not occur if the ingestion of the allergenic food is not followed by exercise. Although the mechanism of action for FDEIA is unclear, it is speculated that exercise after allergen ingestion causes greater intestinal absorption of the food protein, which then potentiates anaphylaxis.[1]

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