

Recognition, Treatment, and Prevention of Anaphylaxis



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KEYWORDS

• Anaphylaxis • Epinephrine • Management • Observation • Prevention

KEY POINTS

- Anaphylaxis remains a clinical diagnosis based on probability and pattern recognition.
- The evidence base for the treatment of anaphylaxis is weak and largely based on consensus expert recommendations and anecdotal reports.
- Intramuscular epinephrine is the treatment of choice for acute anaphylaxis.
- Education, avoidance, and prevention are critically important because some anaphylactic reactions are so severe that death occurs despite rapid recognition and treatment.

INTRODUCTION

Anaphylaxis, an acute and potentially lethal multisystem allergic reaction, occurs in a variety of clinical scenarios and is almost unavoidable. Immunologic reactions to medications, foods, and insect stings cause most episodes, but virtually any substance capable of inducing systemic degranulation of mast cells and basophils can produce anaphylaxis. International studies suggest the lifetime prevalence is 0.05% to 2% with a mortality of 1%.^{1,2} An expedient diagnosis of anaphylaxis can be challenging. Prevention of future episodes involves collaborative efforts between patients and their family members, community, and health care professionals. This article focuses on current recommendations for the recognition, treatment, and prevention of anaphylaxis.

Conflicts of interest: Dr S.F. Kemp has served as an anaphylaxis advisor for Sanofi US Services (Bridgewater, NJ). The other authors have no potential conflicts of interest to declare.

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CLINICAL RECOGNITION OF ANAPHYLAXIS

Anaphylaxis remains a clinical diagnosis based on pattern recognition and probability. No evaluation can prove causation of anaphylaxis conclusively without directly challenging the patient with the suspected agent, which is a course of action that is generally contraindicated by ethical and safety concerns. Cause and effect often are confirmed historically in patients who experience objective findings of anaphylaxis after inadvertent reexposure to the causal agent.

As highlighted in symposia jointly sponsored by the National Institute of Allergy and Infectious Diseases and the Food Allergy and Anaphylaxis Network, anaphylaxis is defined as a “serious allergic reaction that is rapid in onset and may cause death” and is considered likely if any 1 of 3 criteria is satisfied within minutes to hours: (1) acute onset of illness with involvement of skin, mucosal surface, or both, and at least 1 of the following: respiratory compromise, hypotension, or end-organ dysfunction; (2) 2 or more of the following occur rapidly after exposure to a likely allergen: involvement of skin or mucosal surface, respiratory compromise, hypotension, or persistent gastrointestinal symptoms; (3) hypotension develops after exposure to a known allergen for that patient: age-specific low blood pressure or decreased systolic blood pressure more than 30% compared with baseline.³ A retrospective cohort study of 214 emergency department patients ascertained that these criteria had a positive predictive value of 69% and a negative predictive value of 98%.⁴ However, anaphylaxis occurs as part of a clinical continuum that can begin with minor symptoms such as itchy skin, eyes, or nose and rapidly progress to life-threatening respiratory or cardiovascular manifestations. In clinical practice, the ultimate severity of an anaphylactic reaction is difficult to predict at its onset.

Anaphylaxis is associated with 1 or more of the following signs and symptoms: diffuse erythema and pruritus, urticaria, angioedema, bronchospasm, laryngeal edema, hyperperistalsis (eg, abdominal cramps, emesis, diarrhea), uterine cramps, hypotension, or cardiac arrhythmias. Urticaria and angioedema are the most common manifestations, but cutaneous findings may be delayed or absent in rapidly progressive anaphylaxis or they may vary with certain populations (eg, in children or in perioperative anaphylaxis).^{2,5} The next most common manifestations of anaphylaxis are respiratory symptoms, followed by dizziness, syncope, and gastrointestinal symptoms. The more rapid the occurrence of anaphylaxis after exposure to a stimulus, the more likely the reaction is to be severe and potentially life threatening.^{1,2}

Anaphylactic reactions may be immediate and uniphasic or they may be delayed in onset, biphasic (recurrent), or protracted. The reported time of onset of the late phase of biphasic anaphylaxis varies from 1 to 72 hours after apparent resolution of the initial phase.^{6,7} Protracted anaphylaxis may persist for up to 32 hours.⁷ Neither biphasic nor protracted anaphylaxis can be predicted from the severity of the initial phase of an anaphylactic reaction because they have occurred after what were perceived initially to be mild episodes.

MANAGEMENT OF ANAPHYLAXIS

Systematic reviews have noted the lack of optimal, randomized controlled trials of epinephrine, antihistamines, and glucocorticoids in anaphylaxis.^{8–11} Pending a stronger evidence base for the treatment of anaphylaxis, practice parameters and consensus emergency management guidelines afford the best clinical guidance.^{12–15} However, physicians and other health care professionals may not follow them.^{16–18}

Clinicians who perform procedures and administer medications should have the appropriate medications and equipment available to treat anaphylaxis.^{2,12,15} A sequential approach to the management of anaphylaxis is outlined in **Box 1**. The prompt,

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