Preparing for Anaphylaxis

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PRIOR TO practice, a 17-year-old soccer player ate a candy bar containing peanuts. Unbeknownst to the athlete, he had an allergy to nuts. Some 45 minutes later he complained to the athletic therapist of itchy eyes and hives. The symptoms progressed to nausea, tachycardia, and edema of the cheeks, tongue, and larynx.

The actions taken by the athletic therapist over the next 10 minutes in this situation may spell the difference between life and death. In order to administer the essential first aid, the athletic therapist must first recognize that the athlete is suffering from an anaphylactic reaction.

Anaphylaxis is a rare but life-threatening systemic allergic reaction caused by contact with an antigen for which one's body is hypersensitive. The antigen activates the mast cells (large cells found in connective tissue) and basophils (a type of white blood cell) present in the body to release chemical mediators of anaphylaxis. Common causes include food allergies, drugs, insect bites, and exercise.

Athletic therapists are usually the first responder to emergencies involving athletes, therefore they should be trained to recognize and treat anaphylaxis. If not managed properly, this condition can be fatal.

**Signs and Symptoms**

The signs and symptoms associated with anaphylaxis can emerge within seconds of contact with the stimulus, or even hours later. Since anaphylaxis has such a quick onset and is so life threatening, it is important for the athletic therapist to quickly recognize the common signs and symptoms.

There are large numbers of mast cells and basophils in the skin, respiratory tract, and gastrointestinal tract of the human body (Metcalfe, 1993). Because of the high numbers of mast cells and basophils in the body, anaphylactic signs and symptoms can manifest in several regions.

The most common sign is the emergence of hives. Most case studies reveal that hives are a common occurrence with anaphylaxis regardless of the allergy. Other common signs and symptoms include edema of the tongue, cheeks, and larynx, tachycardia, and itching skin around the eyes, nose, and mouth.

A complete list of signs and symptoms appears in the sidebar (next page). Quick recognition of these signs is the key to correctly managing an athlete with anaphylaxis.
Common Causes

It is vital for athletic therapists to know whether any member of their team is at risk, and if so, what the individual is allergic to. This essential information can be provided through a detailed medical history and preseason screening. Athletic therapists must take the time to inquire about any history of allergies for each athlete.

As noted earlier, a number of things can evoke an anaphylactic reaction—foods, drugs, insect bites, exercise, and latex. All of these causes have significant relevance to athletic therapists.

Food

Food is the most common cause of anaphylactic reactions (Metcalfe, 1993). Athletic therapists periodically deal with athletes and food whether it is a pregame meal or traveling for an away game. Although any type of food could cause a reaction, some common ones include celery, cabbage, eggs, crustaceans (shrimp, lobster, crab), dairy products, peanuts, pistachios, hazelnuts, bananas, apples, and grapes.

Drugs

Athletic therapists must be aware of common medications that can cause anaphylaxis. Topical antibiotics such as Polysporin, Neomycin, and bacitracin have been found to cause anaphylaxis in some individuals. Separate studies have reported anaphylactic reactions following topical application of common antibiotics (Knowles & Shear, 1995; Phystowski et al., 1979).

Other common medications to be aware of in terms of risk are NSAIDs such as aspirin, ibuprofen, and naproxin sodium. These drugs require the help of arachidonic acid metabolites for absorption. Arachidonic acid metabolites are common mediators involved with anaphylactic reactions. However, the risk of reaction caused by NSAIDs is minimal. Other drugs that may cause a reaction include penicillin, insulin, sulfonamides, and several vaccines, possibly due to the egg content (Wyatt, 1996).

Insect Bites

Insect bites are a common cause of anaphylactic reactions. Because many athletic events are held outdoors where the risk of insect bites is high, the athletic therapist must prepare for anaphylactic emergencies. Approximately 2 million people in the U.S. are allergic to insect venom, with an average of 50 deaths per year resulting from insect hypersensitivity (Graff, 1996; Wyatt, 1996). Bees, wasps, yellow jackets, hornets, and fire ants are the insects most likely to cause a reaction.

Latex

Many of the items athletic therapists use on a daily basis have the possibility of causing an anaphylactic reaction, for instance, latex rubber gloves, topical antibiotics, and NSAIDs.

With all the concern about bloodborne pathogens, and following the Occupational Safety and Health Administration (OSHA) universal precautions, the clinical use of latex rubber gloves is substantial. However, several case studies have found latex particles to cause anaphylaxis. Inhalation of the latex particles or direct contact to the skin can cause an anaphylactic reaction in people allergic to latex (Ballantyne & Brown, 1995).

Exercise

Finally, even exercise has been shown to cause anaphylaxis. The exact mechanism is not completely understood, but exercise causes the release of chemical mediators by the mast cells and basophils. Exercise-induced anaphylaxis symptoms may begin within 5 minutes of starting exercise and up to 4 hours following exercise (Nicholes, 1992).

Exercise-induced anaphylaxis is more common in persons younger than 25 and is twice