TREATMENT OF ANAPHYLAXIS

Anaphylaxis is a sudden, potentially severe allergic reaction that may involve the skin, the respiratory tract, the gastrointestinal tract, and in some cases, the circulatory system (1). In children attending school, anaphylaxis is generally the result of allergic reactions to food, insect stings, or rarely, medications. For every 200 students attending a school, two to four students are likely to have a significant food allergy and one is likely to have a stinging insect allergy. While the majority of these reactions are self-limited or respond readily to early medical intervention, fatal anaphylactic reactions have been reported (2). Those with asthma are at greatest risk of severe anaphylactic reactions.

Signs and symptoms of anaphylaxis vary considerably from person to person and from time to time. Reactions may begin with a tingling sensation, itching, or metallic taste in the mouth, followed by itching and tightness in the throat, hives and/or generalized swelling of the face and extremities. A sensation of "air hunger" and wheezing, nausea, abdominal cramps and vomiting, a drop in blood pressure and loss of consciousness may follow this. Onset of symptoms may be within minutes and rarely beyond one hour following exposure. The time course of the reaction may follow one of three patterns: 1) rapid progression of symptoms, 2) early symptoms followed by apparent resolution for one to two hours and then rapid development of respiratory symptoms and/or drop in blood pressure, or 3) protracted symptoms despite medical management.

The rapidity with which life-threatening reactions may develop in susceptible children necessitates the availability and early, appropriate administration of epinephrine (adrenaline) followed by immediate transport to an emergency room at the first sign of anaphylactic symptoms. Children at risk for anaphylactic reactions must be identified to the school. School nurses, teachers, and/or other school personnel must be trained to recognize symptoms of impending anaphylaxis, to administer an injection of epinephrine (adrenaline) and an oral dose of liquid antihistamine, and to summon an emergency service for transport to the nearest emergency facility.

If a child with a known food allergy is suspected of ingesting the food or a child with insect sting allergy is suspected of being stung by a bee, he/she should be given liquid diphenhydramine (Benadryl) immediately, even if there is some doubt as to whether the child ingested the suspected food or was stung by the insect. The attached form indicates that epinephrine should be given at the first sign of throat, lung or heart symptoms and possibly sooner. For the reasons described above, the person who experienced anaphylaxis should be transported to the nearest emergency facility. Each child should have a specific emergency plan with the doses of antihistamine and epinephrine to be given and the telephone numbers of the ambulance service to be summoned (often 911), the child's parents or guardians and pediatrician, and the emergency room where the child is to be taken. In no case should treatment or transport be delayed if the parents (guardians) or pediatrician cannot be reached.

Epinephrine is the most effective drug for treating anaphylaxis and should be readily available for any child at risk for anaphylaxis. The benefit of administering epinephrine in situations of doubt about symptom severity outweighs the side effects, which are generally mild. It is most easily administered with an auto-injectable device, Epi-Pen®/EpiPen Jr.®, in the lateral thigh muscle (side of the upper leg). A second injection may be given in 10 to 15 minutes if the child continues to be in distress. In children with severe breathing difficulty and asthma, up to six puffs of a bronchodilator (Alupent, Proventil, Ventolin) may be given in addition to the epinephrine if available.

Prompt recognition of signs and symptoms of anaphylaxis, early administration of epinephrine, and rapid transport to an appropriate emergency facility are the keys to successful management of anaphylaxis.

1. Joint Task Force on Practice Parameters, American Academy of Allergy, Asthma and Immunology, American College of Allergy, Asthma and Immunology, and the Joint Council of Allergy, Asthma and Immunology The diagnosis and management of anaphylaxis. J Allergy Clin Immunol 1998;101:S465-S528.

2. Sampson HA, Mendelson L, Rosen JP: Fatal and near-fatal anaphylaxis reactions in children. N Engl J Med 1992:327:380-384.