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GUEST EDITORIAL

Self-Administration at School of Prescribed Medications for Asthma and Anaphylaxis

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Please see related figure on page 315, and related position statement on page 293.

In 2002 it was estimated that 9.2 million children in the U.S. have asthma.[1] A recent national survey of school nurses indicated that asthma was more disruptive of school routines than any other chronic condition.[2] In day care facilities and schools, children experience increased symptoms or frank attacks of asthma in association with exercise or after exposure to allergens in the classroom. Also, those with viral respiratory tract infections may develop asthma symptoms at school or leave home with minor asthma symptoms (e.g., cough) that become worse as the day progresses.

A short-acting inhaled β2-selective agonist such as albuterol is the most effective initial treatment for increased asthma symptoms.[3] Also, pretreatment with a β2-agonist can prevent acute asthma symptoms that results from vigorous activity such as that which occurs during recess, physical education class, or after school sports. The β2-agonist is administered through an age-appropriate device. In older children, a press-and-breath or breath-actuated metered-dose inhaler (MDI) is adequate for drug delivery and can be conveniently carried by the student. In younger children who are unable to coordinate actuation of the device and inhalation, a valved holding chamber with mouthpiece (e.g., Aerochamber Plus, OptiChamber-Advantage, or Vortex) may be required, and infants and toddlers need a valved holding chamber with attached mask. While children requiring an assist device are usually too young to self-administer medication, these devices can eliminate the need to have an air compressor/nebulizer set-up at school. Numerous studies in children of all age groups, including those <2 years, indicate that a nebulized β2-agonist offers no advantage over the same drug delivered by an MDI attached to a chamber. Additionally, delivery in this manner causes fewer side effects, is more convenient, and is less expensive.[4-6]

Delays in administering an inhaled β2-agonist can result in a more severe exacerbation that might require treatment in a hospital emergency department, and on rare occasion, such a delay may result in a fatal outcome. In about 60% of children who died from asthma, the final episode was sudden in onset (not preceded by milder symptoms) and fatal within one hour[7] (i.e., asphyxic asthma).

Anaphylaxis is a medical emergency. In the susceptible child, it can result from exposure to a food (e.g., peanuts), an insect sting, a medication, or allergen immunotherapy. Anaphylaxis is an IgE-mediated reaction that results in mast cell release of mediators such as histamine and leukotrienes. The reaction is explosive and is manifested by one or more of the following signs and symptoms: cutaneous (hives, angioedema), respiratory (bronchospasm, laryngeal edema), cardiovascular (hypotension), and gastrointestinal symptoms (vomiting, diarrhea). The immediate administration of intramuscular epinephrine through an auto-injector syringe (e.g., EpiPen) is life saving. Death from anaphylaxis can occur within minutes, and the longer the delay in administering epinephrine, the greater

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the risk of a fatality.[8]

Common to both asthma and anaphylaxis is the need to rapidly administer medication. Accordingly, we recommend that any child who is capable and responsible be allowed to carry and self-administer in school a short acting β2-agonist MDI for asthma or auto-injector epinephrine syringe for anaphylaxis. The child must be given adequate instruction on when and how to administer the medication, and parents and clinicians must provide the school with a written action plan. For children who are not able to self-administer medication reliably, we recommend that the medication be kept with the child's teacher. The teacher also must be taught when and how to administer it.

Currently, many schools require that the child go to an office or nurse for medication. The delay in medication administration caused by such a policy is dangerous, especially for children with asphyxic asthma or anaphylaxis. Unfortunately, many schools do not have a full-time nurse. For example, in Florida, the nurse to student ratio is only 1:2663.[9] Often administration of medication is relegated to an untrained office worker. Thus, it would be far more effective and safer for the child to self-administer the medication when the child is capable of doing this and for the child's teacher to administer the medication when the child is not capable than to risk the consequences of delayed treatment by sending the child to the school office or nurse.

Surprisingly, few states have laws or regulations allowing students to carry and self-administer prescribed medications for asthma and anaphylaxis[10] (see figure on inside back cover). In Florida, for example, a statute allows a student to carry an MDI with written approval from physician and parent, but there is no provision for carrying epinephrine for anaphylaxis.[11] In a recent survey of physician members of the Florida Asthma, Allergy and Immunology Society, 21% reported difficulty obtaining permission for a student to carry epinephrine in school.

If carrying medication is not allowed for your patients, we urge you to be proactive, and, along with parents, lobby state public health officers and legislative representatives to implement a regulation or law that allows it. Such actions will reduce morbidity and prevent deaths from asthma and anaphylaxis in children.

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