Wheeze & Sneeze

Fall 2005

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Non-Allergist Management of Allergic Emergencies

The allergic reactions most likely to require emergency management by non-allergist physicians are type-1, IgE-mediated reactions resulting in anaphylaxis. Anaphylaxis is a sudden, severe, potentially fatal allergic reaction involving two or more organ systems (e.g. hives and feeling faint) or the following single systems: respiratory tract other than isolated coryza and usually presenting as shortness of breath, or circulatory system with patient lightheaded, faint and BP low with HR usually high unless altered by drugs, and at risk of shock from generalized vasodilation.

Foods and insect stings are the most common causes of anaphylaxis in general but in non-allergist medical offices the most common causes are medications and latex. Because they are only given to patients who are already allergic to their contents, allergy shots pose the greatest risk for anaphylaxis in the primary care office. The reported frequency range of generalized allergy shot reactions, including generalized single organ system urticaria or coryza as well as anaphylaxis, is from 1/300 to 1/2,000 injections[1-3]. We will focus here on safe shot technique for the primary care physician, but comment that the same general principles apply to anticipatory and early management of anaphylaxis from stings and foods. We believe sting and food anaphylaxis should be treated by allergists because venom protein immunotherapy can reduce the risk of fatal sting anaphylaxis to ~0. Safe and effective food immunotherapy is not yet a reality but the allergist can Rx and teach optimal management using available treatments and refer the highest risk patients to centers studying promising new treatments.

A significant fraction of avoidable immunotherapy fatalities result from giving the wrong dose or the wrong vaccine. This can be prevented by asking patients to verify that it's their vial and their shot record before each dose is drawn up. Other risk factors are asthma in exacerbation and interruption in shot schedule causing loss of tolerance. As delays for asthma can interrupt shot schedules, these cases should be discussed with the prescribing allergist. Because severe reactions begin early, all allergy shot recipients should remain under observation for 20 minutes by the clock and be checked by a health care

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professional for presence and size of local reaction and presence of any symptoms that might represent anaphylaxis (including flush, burning, itch, light-headedness, nausea or acute increase in symptoms of hay fever or asthma) before they leave the office.

New anaphylaxis guidelines[4,5] stress that timely IM administration of epinephrine saves lives, while delayed administration increases risk of death. Present guidelines do not address the dynamic behavior or anaphylaxis, the fact that anaphylaxis can last up to 32 hours while epinephrine, the only recommended treatment (aside from supportive therapy for airway obstruction and circulatory collapse if needed), has a biologic life of ~20 minutes. In our practice we have anecdotally found fast acting H-1, H-2 and LTC receptor blockers to help dampen the process of anaphylactic mediator release if given to patients who do not at that time meet indications for epinephrine, or if given after giving epinephrine in patients who do. Dr. Coifman is personally raising the question of their use with the authors of the new guidelines, and we hope to have results to report to you next year.

We recommend that if you give allergy shots you stock and when indicated give cetirazine, the most rapidly acting and among the most potent H-1 antihistamines available in easy to chew or swallow dosage forms (adult dose = 10 mg; samples for occasional office use can usually be obtained from the manufacturer), chewable tablets of montelukast (adult dose = 2 chewable 5 mg tabs, more rapidly absorbed than the adult 10 mg tab. Samples for occasional office use usually also available), and either ranitidine syrup for young children or inexpensive generic 20 mg famotidine tabs for adults. We recommend that our type I sting allergy patients take these three meds immediately following any sting, and that our type I food allergy patients take them upon any discovery of accidental ingestion, after rather than before epinephrine if they also meet the definition of anaphylaxis (2 systems or single system throat, lower respiratory or circulatory reaction). If they need epinephrine outside of a medically supervised setting, we recommend going to the nearest ER waiting room, alerting staff that they may need treatment, and staying where treatment is immediately available until 60 minutes after field-administered epinephrine. If the reaction is severe, call "911" even from your office. We've done this three times in 19 years, in each case with full recovery within a few hours but no regrets about the "911" call.

Which dosage form of epinephrine to use?

$40 emergency adrenalin injectors are designed for quick and easy use in the field, for unanticipated anaphylaxis from stings or accidental contact with allergenic foods. For your office it's much more cost-effective to stock inexpensive 1 ml ampules of epinephrine 1:1000 and have them out and immediately available, together with the above oral meds and syringes with long enough needles for IM dosing in the lateral or anterolateral thigh or deltoid, wherever and whenever your staff is giving allergy shots. For patients needing emergency epinephrine injectors, a better product should be in pharmacies before the end of 2005. It's the Twin-ject, which gives one spring-loaded dose like the Epi-Pen but can deliver a second dose if the reaction persists or comes back when the first dose wears off – by twisting the plunger 90 degrees to line it up with a groove and pushing it in like an ordinary syringe.

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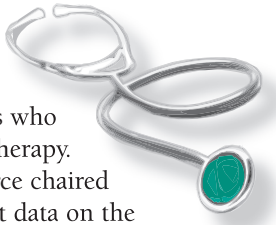
Thank you

Beta Blockers in Allergy & Respiratory Disease

There is no question that non-selective beta blockade complicates anaphylaxis and that even cardioselective beta blockers convey some risk. However, the heart is also a shock organ in anaphylaxis and at least one sting anaphylaxis death has been attributed to v-fib in a patient taken off beta blockers because of their risk[6]. Systemically absorbed beta blocker eye drops also increase risk, but there's a way to prevent systemic absorption without loss of glaucoma control in many glaucoma patients.

For allergy patients who would normally be skin tested or benefit from allergy shots, but who need beta blockers for circulatory disease, if the physician prescribing the beta blocker confirms that the patient can safely do so, and substituting other BP meds if needed, we ask the patient to stop the beta blocker 48 hours before and resume it 12 hours after each set of skin tests or shots.



Venom immunotherapy is indicated for highly sting-allergic, high sting-risk patients who cannot interrupt beta blocker therapy. An Academy of Allergy task force chaired by Dr. Coifman hopes to collect data on the safety of inhalant immunotherapy in patients taking beta blockers, but results are probably about three years away.

The American Academy of Allergy Asthma & Immunology continues to recognize Dr. Coifman as a teacher, a researcher and a clinical innovator

For its 2006 annual meeting the AAAAI named Dr. Coifman to chair a workshop on the safety of home immunotherapy and to be one of seven speakers to summarize highlights of the five day meeting for its closing session. Dr. Coifman is co-author of a paper demonstrating no greater risk of allergy shots at home than in medical office settings when supervised by experienced allergists with systematic protocols for home shot safety, and he chairs the practice patterns task force of the AAAAI's immunotherapy committee, with a charge that includes collecting safety data for inhalant allergen immunotherapy in patients receiving beta blockers as he has already done for shots given at home.

Non-selective beta blockers aggravate even mild COPD[7]. In a small series of patients with obstructive lung disease complicated by chronic heart failure, CHF treatment with the non-selective beta + alpha blocker carvedilol was well tolerated and deemed clinically effective in almost all patients with CHF and COPD without reversible airflow obstruction, but not tolerated by 3 of 12 patients with CHF & asthma[8]. In a small study of 15 mild-moderate COPD patients studied after four days on each drug, a non-selective beta blocker reduced pulmonary function and response to beta agonist bronchodilator and increased airway hyperreactivity. A cardioselective beta blocker did not affect baseline pulmonary function or response to beta agonist but still increased airway hyperreactivity. Celiprolol, a beta-1 blocker that weakly stimulates beta-2 and blocks alpha-2 receptors had no effect on baseline pulmonary function, response to beta adrenergic bronchodilator or airway hyperreactivity[7]. Large meta-analyses found no adverse effects of cardioselective beta agonists in single dose and short term trials patients with mild-to-severe COPD or mild asthma[9-12]. Concerns about generalizing this conclusion are that the studies were short term, did not study patients during exacerbations, and that a cardioselective beta blocker increased airway hyperreactivity[7] which is a risk factor for both occurrence and severity of asthma exacerbations. Patients with COPD and hypertension treated with a beta blocker (cardioselective in 91% of subjects) had less all cause mortality than controls treated with calcium channel blockers, with the difference restricted to the subgroup who also had pre-existing heart disease[13].

A record review study of Medicare beneficiaries with asthma or COPD who survived acute myocardial infarction and did not have heart failure demonstrated increased survival with beta blockers (>90% cardioselective) in patients whose asthma or COPD

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was so mild that treating physicians did not prescribe a beta adrenergic in hospital or at discharge, but no survival advantage in patients with more severe asthma or COPD[14]. Risk-benefit considerations are discussed for cardioselective beta blockers in asthma patients with heart failure or history of MI[15].

The interaction between beta adrenergic intervention in cardiac and pulmonary disease is a two way street, with a 66% increase in the risk of adverse cardiac events in a meta-analysis of patients with asthma or COPD treated with beta adrenergic agonists[16] and a 38 to 93% increase in risk depending on # beta agonist canisters used per year in another study[17]. There's also a reciprocal cardiac risk in anaphylaxis, where self-administered epinephrine can trigger cardiac events in susceptible patients.

The bottom line on beta blockers: 1) Discourage smoking to reduce heart disease, high BP and COPD. 2) Cardioselective beta blockers are probably safe for patients with mild, stable COPD, no asthma and no risk of anaphylaxis. For others with indications for beta blockers or at increased cardiac risk from beta adrenergics for asthma or epinephrine for anaphylaxis, we recommend that the physician treating the lung disease or allergy and the physician treating the heart disease talk with each other to formulate recommendations for the best disease control with the least risk, and that the patient be asked to give informed consent for treatment recommended as the best course in the face of known risks.

The AASJ Difference

Medicine is part art, part science. Every practice in a specialty should draw on the same science, but each develops its own approach to the art.

Our approach to the art of medicine comes from Dr. Coifman's engineering approach to solving the problems presented by each patient. This usually means collecting more details about your history and physical findings and looking more closely for "separately treatable comorbidities." These are other conditions that make your allergy and asthma problems worse, and that if recognized and treated, can make your allergy and asthma problems much better.

We like treatments that are simple, inexpensive, safe and effective. These include a recipe for salt solution to irrigate noses and sinuses that helps 90% of adults and older children with chronic or recurrent sinusitis, raising the head of the bed to keep stomach acid from aggravating 50% of asthmatics, and safe and inexpensive skin softeners and moisture sealants to increase comfort and reduce prescription needs in eczema and related skin conditions. We teach simple and inexpensive environmental engineering techniques to reduce allergen exposure to dust mite, cat, dog and mold.

For most of the diseases we treat, disease activity and need for treatment vary widely over time. Taking the same meds every day is simple, this usually involves overtreatment (increasing drug costs and side effects) 90% of the time, and undertreatment (resulting in preventable symptoms and need for medical care) about 5% of the time. We can usually achieve better long term control with less medicine use by studying each patient's individual pattern of variability and developing a simple treatment plan based on this information.

Our approach usually results in slightly more and longer office visits, greater use of low cost office tests, less use of expensive laboratory tests and imaging studies, less use of expensive medications, better clinical outcomes, and lower total cost of care.