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Competing interests: None declared.

Anaphylaxis treatment: the details

Having read the review article by Anne Ellis and James Day,[1] I have several questions about drug therapy for anaphylaxis.

Ellis and Day[1] report that patients seen in their unit are usually discharged with a 4-day prescription for prednisone and diphenhydramine, a relatively common approach. However, given that many patients must drive or go to work, I wonder why the authors do not advocate one of the newer nonsedative antihistamines. Similarly, would it be appropriate to recommend the addition of ranitidine for 48 hours, on the basis of the experimental evidence presented by Ellis and Day[1] and given the risk of a biphasic reaction? Since the second-phase reaction may be more severe than the primary reaction,[1] this approach might be safer, although it is as yet unproved. I also wondered what dosage of prednisone is recommended for postdischarge therapy and whether the dose should be tapered.

Ellis and Day[1] mention the cross-reactivity between cephalosporin and penicillin, but there have been conflicting recommendations as to whether this applies to the third-generation cephalosporins. Kelkar and Li[2] recommended against prescribing third-generation cephalosporins to patients allergic to penicillin, but their review was based on extrapolation and inference. Anne and Reisman[3] concluded that it is safe to administer cephalosporin antibiotics, especially third-generation drugs, to penicillin-allergic patients. Pumphrey and Davis[4] reported 6 anaphylactic deaths after a first cephalosporin dose, which occurred over a 5-year period in the United Kingdom. Three of these patients had a penicillin allergy, but the generation of the cephalosporins in these cases was not indicated. In my own experience, many physicians in France are not reluctant to use third-generation cephalosporins, when indicated, for penicillin-allergic patients (in the hospital environment).

Finally, prescribing epinephrine as volumes of a 1:1000 solution is a potentially dangerous dosing system. Administering epinephrine measured in micrograms (or milligrams), as pumped from clearly labelled ampoules, might avoid inadvertent ventricular tachycardia.

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Competing interests: None declared.

In their excellent review of the diagnosis and management of anaphylaxis, Anne Ellis and James Day[1] mention that anaphylactic patients who use β-blockers should be given glucagon. I was not aware of this use of glucagon.

In my own experience as a family physician, the most significant case of anaphylaxis that I remember involved a patient who had not previously been seen in our clinic and whose medical history was unknown to us. He walked into the clinic, bypassed the receptionist and entered an examination room, where he lost consciousness. Resuscitation required multiple intravenous doses of epinephrine. The patient's condition was eventually stabilized in hospital with administration of corticosteroids.

We later learned that this patient, who was taking β-blockers and who had not previously been aware of any allergies, had been stung by an insect while walking along a street leading toward the clinic. Fortunately, he was able to reach the clinic before losing consciousness.

Although this incident happened 20 years ago, it remains applicable, reminding us that patients with anaphylaxis often do not present to their own physician, and a history of β-blocker therapy may not be evident. In this situation, would Ellis and Day recommend a combination of epinephrine and glucagon?

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[The authors respond:]

Axel Ellrodt raises several questions regarding discharge therapy after anaphylaxis. The first relates to alternatives to diphenhydramine prophylaxis. Diphenhydramine has been established as an effective agent in the treatment and prevention of anaphylactic and anaphylactoid reactions, where its sedative properties are an advantage.[1] Given orally at doses of 25 to 50 mg every 4 to 6 hours, it remains the antihistamine of choice to prevent and manage these episodes. A second-generation antihistamine could be substituted if sedation were a concern. However, because biphasic reactivity may be delayed for up to 24 hours, the patient should be advised to minimize activity (including driving) during this interval, and sedative effects may therefore be unimportant. After this interval, treatment with

either diphenhydramine or a nonsedating antihistamine such as cetirizine (10 mg daily for 3 days, given orally) would be appropriate. Although H_2 receptors are involved to a limited extent in the pathophysiology of anaphylaxis, we rarely administer H_2 blockers in this capacity and consider their use optional. With respect to prophylactic corticosteroids, we usually begin with a single oral dose of 50 mg prednisone, followed by reduced doses of 40 mg on days 2 and 3, then 20 mg on days 4 and 5, then discontinuation. The medication is given in the morning to optimize effect and minimize adrenocortical suppression.

The questions surrounding cross-reactivity of penicillin and third-generation cephalosporins remain unresolved. Allergic reactivity to cephalosporins (of any type) is 4 to 8 times greater in patients with a history of allergy to penicillin than in those without,[2,3] and the rate of reactivity to cephalosporins is 4% to 7% in patients with previous reactivity to penicillin.[3] Recent evidence suggests that variable side-chains on the β-lactam ring, rather than the β-lactam nucleus, induce this cross-reactivity.[4,5] Indeed, several patients with documented skin test reactivity to penicillin who were given doses of second- and third-generation cephalosporins had no reactivity.[6] Nevertheless, caution is advised in the administration of cephalosporins to patients with known anaphylactic reactivity to penicillin.

We agree that the designation 1:1000 or 1:10 000 can be confusing, but this description facilitates rapid dosing and administration of epinephrine, which is essential in managing anaphylaxis.[7] In addition, this presentation displays the dilution much more prominently than if the dose is given as milligrams per millilitre (mg/mL).

Patrick Potter raises the issue of empiric use of glucagon for treatment-resistant anaphylaxis. Epinephrine resistance in anaphylaxis does suggest concomitant β-blockade and hence an indication for glucagon administration. However, glucagon may be associated with nausea, vomiting, hyperglycemia and allergic reactivity, which precludes its general use in anaphylaxis. If repeat doses of epinephrine yield inadequate clinical response during an episode of anaphylaxis, especially when there is evidence of increasing systolic hypertension due to unopposed α-adrenergic activation and bradycardia signifying reflex vagotonic effect, further epinephrine is contraindicated and glucagon should be administered.

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Competing interests: None declared.

Corrections

In a recent commentary summarizing the updated recommendations for the management of dyslipidemia and the prevention of cardiovascular disease,[1] the year in which the report of the US National Cholesterol Education Program Adult Treatment Panel-III was published was given incorrectly as 2002; this report was in fact published in 2001.

In addition, in the appendix to the commentary, certain symbols are missing from the 3 tables on page 923 and, in the paragraph on diet (page 924), the body mass index to be achieved and maintained should be less than 25 kg/m^2. A corrected version of the appendix has been posted online at www.cmaj.ca/cgi/content/full/169/9/921/DC2.

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In the recent article on high-altitude decompression illness by Michael Allan and David Kenny,[1] the map showing locations of hyperbaric facilities in Canada did not include the Hyperbaric Medical Centre of the Hôtel-Dieu de Lévis, Centre hospitalier affilié à l'Université Laval, located in Lévis, Que. Physicians at this centre can be reached at 418 835-7121.

The Undersea and Hyperbaric Medicine Society offers a directory of hyperbaric chambers and facilities in North and Central America through its Web site (www.uhms.org).

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