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MOC-CME Review

Evaluation of venom allergy

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INSTRUCTIONS

Credit can now be obtained, free for a limited time, by reading the review article in this issue and completing all activity components. Please note the instructions listed below:

- Review the target audience, learning objectives and all disclosures.
- Complete the pre-test.
- Read the article and reflect on all content as to how it may be applicable to your practice.
- Complete the post-test/evaluation and claim credit earned. At this time, physicians will have earned up to 1.0 *AMA PRA Category 1 Credit™*. Minimum passing score on the post-test is 70%.
- Approximately 4-6 weeks later you will receive an online outcomes assessment regarding your application of this article to your practice. Once you have completed this assessment, you will be eligible to receive MOC Part II credit from the American Board of Allergy and Immunology.

Overall Purpose

Participants will be able to demonstrate increased knowledge of the clinical treatment of allergy/asthma/immunology and how new information can be applied to their own practices.

Learning Objectives

At the conclusion of this activity, participants should be able to:

- Describe the algorithm for managing a patient with an insect sting reaction
- Discuss the benefits of referral of patients with venom allergic reactions to an Allergist
- List the features that identify high risk insect sting allergy patients

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Target Audience

Physicians involved in providing patient care in the field of allergy/asthma/immunology

Accreditation

The American College of Allergy, Asthma & Immunology (ACAAI) is accredited by the Accreditation Council for Continuing Medical Education (ACCME) to provide continuing medical education for physicians.

Designation

The American College of Allergy, Asthma & Immunology (ACAAI) designates this journal-based CME activity for a maximum of 1.0 *AMA PRA Category 1 Credit™*. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

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Clinical Vignette

An 18-year-old woman presents to clinic after a bee sting she received at a picnic caused her to break out in diffuse urticaria within 3 minutes. She denies shortness of breath or any other symptoms. Her urticaria resolved after she took 50 mg of diphenhydramine. She is wondering if there is anything that needs to be done now that her reaction is over.

Introduction

A significant number of adults (3%) and children (1%) experience systemic reactions to Hymenoptera stings, leading to approximately 40 to 100 fatalities in the United States each year.[1] However, the number of fatalities is likely an underestimate.[2] The Hymenoptera insects that most commonly cause allergic reactions are from the families Apidae (honeybees), Vespidae (hornets, wasps, and yellow jackets), and Formicidae (fire ants).[3] Table 1 lists the characteristics of these insects. Stinging insect venom is a complex mixture of multiple components, including proteins, enzymes, vasoactive amines, and others. Several of these components contribute to the normal local reaction of pain, itching, erythema, and edema seen in all patients. In sensitized patients, proteins in venom will bind to venom specific IgE on mast cells, which causes release of classic mast cell mediators. These mediators can then cause a range of symptoms from local skin reactions to anaphylaxis and death. Systemic reactions can be divided into cutaneous only (flushing, itching, urticaria, angioedema) or reactions with extracutaneous symptoms (bronchospasm, upper airway edema, hypotension, gastrointestinal, and rarely cardiac arrhythmias and seizures). As many as 35% to 60% of patients with previous severe systemic reactions will have anaphylaxis if stung again,[1] even after 10 to 20 years. In contrast, although also IgE mediated, patients with large local reactions (defined as slow onset of swelling during 1 to 2 days of than 10 cm and contiguous with the injection site) have a less than 10% chance of a systemic reaction on subsequent stings.[3]

It is recommended that patients with systemic reactions to venom be prescribed an epinephrine autoinjector, taught how to use it, and referred to an allergist.[1] Allergy referral is important for preventive education, confirmation of diagnosis, and treatment.[4] In a retrospective cohort study of 617 patients presenting to the emergency department during 1 year with a diagnosis of insect sting allergic reaction, only 3% of patients with systemic reactions received all recommended preventive treatments (discussion about avoiding the allergen, self-injectable epinephrine prescription, and referral to allergist). Only 20% of patients with systemic reactions were referred to an allergist.[1] These data are consistent with many other studies that demonstrate low allergy referrals from the emergency department in patients with systemic reactions but do not take into account patients who present to their primary care clinics instead of an emergency department. A retrospective study performed at a Veterans Affairs hospital found that of 192 patients with venom allergy during 2013 to 2014, only 23 patients (12%) were referred to an allergist from both primary care clinics and emergency departments combined (A.P., unpublished data, 2016).

Diagnostic testing for venom allergy can be performed by skin testing or IgE serum testing and is indicated for patients that are candidates for venom immunotherapy (VIT).[5] The decision to test for Hymenoptera allergy should be based on the patient's clinical history. If a present or past systemic reaction was reported, the patient was a candidate for testing, even if he/she had a subsequent sting without reaction after the systemic reaction occurred.[6] Skin testing should be delayed 3 to 6 weeks after the sting reaction because of false-negative test results, which can occur transiently after systemic reactions.[9] Testing is indicated to all vespids and apids even if the patient is confident in the identification of the insect. This is because patients are able to correctly identify the culprit insect with low accuracy and because there is a possibility that there is sensitization to other venoms.[5] If fire ants are the likely culprit, which is usually obvious by history and the characteristic