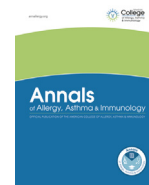




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Letter

Underuse of allergy services for patients having systemic reactions to Hymenoptera venom stings

National mortality data in the United States from 1980 to 1999 indicate that serious anaphylactic Hymenoptera sting reactions account for at least 40 deaths each year.¹ On the basis of the *Internal Classification of Diseases, Ninth Revision* coding in emergency departments, this mortality rate may be underestimated.² Most insect stings result in a transient local reaction that can last several days, and the risk of a systemic reaction in these patients ranges from 5% to 10%.³ Potentially life-threatening systemic reactions to insect stings occur in approximately 0.4% to 0.8% of children and 3% of adults.⁴ Immunotherapy can reduce the risk of future systemic reactions from as high as 60% to 5%; however, referral to allergists for evaluation and consideration for such treatment has been poor.⁵ Our aim was to review patient medical records from 2002 to 2003 with presumed systemic reactions to Hymenoptera stings to evaluate care and consideration for venom immunotherapy (VIT) and compare these data with data from 10 years later in 2013 to 2014.

In this retrospective study, inpatient and outpatient pharmacy data from the Veterans Affairs (VA) Medical Center in Greater Los Angeles were collected for self-injectable epinephrine (SIE) prescriptions dispensed during a 2-year span from January 2002 to December 2003. Duplicate entries for each patient were removed. Using the Computerized Patient Record System, patient medical records were reviewed to identify patients with a venom allergy associated with their SIE prescription. Exclusion criteria included deceased patients at time of review and patients with undocumented or alternate indications for SIE. Information collected included the following: demographic characteristics, whether patients were seen at the VA allergy clinics at any time, type of reaction to venom sting, and whether immunotherapy was started.

Similar information was gathered for a 2-year span from January 2013 to December 2014. In this group, exclusion criteria also included repeat patient entries from 2002 to 2003 data.

Demographic characteristics for both patient groups are given in Table 1. From 2002 to 2003, a total of 281 SIE prescriptions were filled. After duplicate entries were removed, 182 patients met the eligibility criteria. Sixty patients (32.9%) had venom allergy associated with their SIE prescription, of whom 20 (33.3%) were evaluated by an allergist. Reactions were reported as anaphylaxis in 12 patients and local reactions in 5 patients; 3 patients lacked documentation. Despite documented discussion with an allergist, no patients with anaphylaxis consented to start immunotherapy (declined or time commitment issues, $n = 8$; lost to follow-up, $n = 4$).

From 2013 to 2014, a total of 1181 SIE prescriptions were filled. Eligibility criteria were met by 666 patients. Of the 193 (28.9%) who had venom allergy associated with their SIE prescription, only 20

(10.4%) were evaluated by an allergist. Reactions were reported as anaphylaxis in 14 patients and local reactions in 6 patients. Only 1 patient began immunotherapy. Reasons for not starting immunotherapy were declined or had time commitment issues in 7 patients, lost to follow-up in 5 patients, and lack of documentation in 2 patients.

There has been an increasing emphasis on education and preventive measures in management of patients with anaphylaxis because those with a history are at increased risk of subsequent episodes. According to the Stinging Insect Hypersensitivity Practice Parameter, “Patients treated for allergic reactions to stings need better counseling on avoidance, use of epinephrine injectors, and the need for allergy evaluation and treatment” and “venom immunotherapy is recommended for all patients who have experienced a systemic reaction to an insect sting and who have specific IgE to venom allergens.”⁵ Along with education, SIE prescriptions are an integral part of management. Our study found that the total number of SIE prescriptions increased from 281 in 2002 to 2003 to 1,181 in 2013 to 2014; almost a third of these prescriptions were for Hymenoptera sting reactions. A large population-based incidence study in 2008 by Decker et al concluded that 18.5% of all anaphylaxis cases were attributed to venom allergy; explaining the increase in epinephrine dispensing needs further investigation.⁶

Despite the overall increase in the number of SIE prescriptions, referrals to allergist did not follow that trend. In the 2002- to 2003 group, 33.3% of patients were referred or comanaged by an allergist compared with 10.4% in the 2013 to 2014 group. Prior studies have found a lack of referrals to an allergist, with rates ranging from 14% to 44%, depending on the study.^{7,8} Our investigators contacted 20 primary care practitioners listed as dispensing SIEs from our study. All practitioners assumed dispensing epinephrine to a patient is adequate care for those with any significant reaction to Hymenoptera stings. They were unaware of the necessity of proper evaluation and further treatment through allergy/immunology services.

A recent Cochrane review confirmed that VIT is effective in patients who have had a systemic allergic reaction to insect sting, not only by reducing future severe reactions but also by reducing the risk of large local reactions and improving quality of life.⁹ Despite the low rates of immunotherapy in our study, all patients with anaphylaxis reaction who were seen in the allergy clinic had documentation of discussing immunotherapy as a treatment option. The most common reason for not pursuing treatment with immunotherapy was time commitment. Traveling to offices for frequent immunotherapy administration poses a challenge to many patients. Alternate administration options, such as a development of a sublingual immunotherapy, could help improve adherence in our patients.

Disclosures: Authors have nothing to disclose.

<http://dx.doi.org/10.1016/j.anai.2016.11.025>

1081-1206/Published by Elsevier Inc. on behalf of the American College of Allergy, Asthma & Immunology.

Table 1
Patient Demographic Characteristics

Characteristic	2002–2003 group (n = 60)	2013–2014 group (n = 193)
Age, mean (SD) [range], y	63 (11.9) [35–88]	54 (14.6) [23–85]
Sex, No. (%)		
Male	54 (90.0)	152 (78.7)
Female	6 (10.0)	41 (21.3)
Race, No. (%)		
White	34 (56.7)	93 (48.2)
Black	6 (10.0)	45 (23.3)
Hispanics	2 (3.3)	22 (11.3)
American Indian	1 (1.7)	3 (1.5)
Asian	0 (0)	9 (4.6)
Pacific Islander	0 (0)	3 (1.5)
Unknown	16 (26.7)	18 (9.3)

Our study had important limitations. The population studied was predominantly middle-aged males (Table 1). In addition, our study relied on retrospective review of documentation completed by physicians, nurse practitioners, and medical students; thus, it is unclear whether consistent criteria to define anaphylaxis and indication for SIE were used. We also are unaware of whether patients were seen by allergists outside the VA. Although we did not investigate pediatric populations, our results can apply to adult allergy practices because active and retired military members share many similarities to civilian population.¹⁰

Adherence to anaphylaxis guidelines for venom allergy remains low. Although the numbers of SIE prescriptions and patients with an associated venom allergy diagnosis have drastically increased during a 10-year span, the percentage of patients using allergy services has decreased. Larger studies with a more diverse

population are needed to confirm our results; however, it is clear that venom allergy management could be greatly improved.

Anil M. Patel, MD

Vivian Wang, MD

Ami Philipp, MD

Joseph S. Yusin, MD

Department of Allergy and Immunology

VA Greater Los Angeles Healthcare System

Los Angeles, California

jsyusin@yahoo.com

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