

Madigan Army Medical Center Referral Guidelines

Hymenoptera (Bee Sting) Allergy

Diagnosis/Definition

- Systemic reaction to insect sting causing anaphylactic reaction.
- Stinging insects most commonly causing allergic reactions can be divided into two large groups: bees (honeybees, wasps, yellow jackets and hornets) and fire ants. Fire ants have a relatively defined habitat mostly in southern states. There have been no reports of fire ants in the Northwest.

Initial Diagnosis and Management

- Determine whether it was a systemic or local reaction to insect sting.
- If systemic, treatment with epinephrine and secondarily with Benadryl and/or supportive care as necessary based on severity of the reaction. Corticosteroids can prevent the delayed reaction.

Ongoing Management and Objectives

Large Local Reactions. There is a subset of the population who react to stings with large local reactions which are marked by contiguous swelling around the site of the sting. The hallmark of large local reactions is limitation of symptoms to the site of the sting. There are no systemic or whole body symptoms that could be associated with anaphylaxis.

(2) Cutaneous-Only Reactions (Hives). This subset develops a systemic rash (hives) that appears in skin areas away from the sting site. There are no other signs or symptoms beyond that of the rash. This subgroup can be further divided based upon the age at which the reaction occurred to define future risk of anaphylactic reactions. Mucus membrane involvement (tongue, throat, etc.) excludes individuals from this subset (see systemic reaction).

(a) If the reaction occurred before age 16, the estimated risk of subsequent anaphylaxis is low, approximately 5-10%, and the risk of a fatal reaction is very low. Although allergists continue to debate the actual future sting risk for this subset, the consensus is that these individual will not be tested or treated with venom IT. These individuals are counseled on estimated future sting risk, strategies for bee sting avoidance, and considered for injectable epinephrine.

(b) If the reaction occurred after the age of 16, the risk of subsequent anaphylaxis is higher, approximately 20%, and, generally, allergists consider this risk to be high enough to warrant venom testing and subsequent IT if positive testing.

(3) Anaphylaxis or systemic reaction (more than cutaneous only). These individuals have up to a 60 – 70% risk of anaphylaxis to subsequent stings. Venom testing and venom IT is indicated in these individuals if testing is positive to reduce this risk to less than 3%. These individuals are sometimes further stratified on the basis of the severity of their reactions due to differences in the recommended duration of immunotherapy. Of note, subsequent sting reactions will most often be the same or less

severe than previous reactions. However, severe anaphylaxis and death have been rarely described for patients who have experienced no or only milder prior reactions.

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- All individuals who have experienced anaphylaxis (other than as above cutaneous symptoms only in children) should have an epinephrine autoinjector (Epi-pen or Twinject) in their possession. Doses are 1.5mg for children < 65kg and 3.0mg for adults and children > 65kg. Each individual given an epinephrine autoinjector should be given competent instruction on both when and how to use it.
- Medical records should be appropriately annotated with the information on the known allergies and medical warning jewelry or written documentation should be carried on the person.

Indications for Specialty Care Referral

- All patients who have had systemic reactions to bees, wasps, hornets, yellow jackets or fire ants should be referred to the Allergy clinic for consideration of skin testing and immunotherapy. Testing for stinging insect allergy includes insect venom (or fire ant whole body) allergen extract skin testing and/or a blood test (enzyme immunoassay or EIA).

(1) A positive test does not always indicate a high risk for insect sting reactions. There is no utility to general or universal testing to stinging insects, as up to 17% of the population have positive skin tests to insect sting venom, but have no allergic reaction when stung. Therefore, only carefully selected patients should be tested. Decisions on which if any test to perform should be deferred to a trained allergist-immunologist.

(2) In general, skin testing is considered more sensitive than the blood test (EIA). However, some patients will have a negative skin test and a positive blood negative skin test. Furthermore, some patients who recently experienced a sting reaction will have an initially negative skin test that when repeated several weeks later is positive.

e. Venom immunotherapy can significantly reduce the risk of future sting anaphylaxis.

(1) Everyone has at least a small risk of anaphylaxis to future insect stings. The incidence of allergy to stings in the general population is approximately 1 – 3% and as many as 50% of bee sting fatalities are in people who had no prior history of reaction to a sting. The risk of a repeat sting to someone who has had a previous reaction can be as high as 60-70%.

(2) Venom IT can reduce the risk of subsequent stings to less than 3%.

(3) Although venom IT is effective, it does have limitations:

(a) A build-up phase ranging from days (rush IT) to months (conventional IT). During this build-up phase the dose of IT delivered is increased from small amounts of very dilute venom to a concentrated maintenance dose. Injections are then given 4-12 months apart (maintenance phase).

(b) Venom IT must be continued for at least 3 – 5 years. In cases of severe reactions, venom IT is often continued indefinitely. Protection can wane if IT is discontinued, especially if treated for less than 3-5 years.

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- No testing is available for systemic reactions to insects other than bees, wasps, hornets, yellow jackets or fire ants, so referral is not indicated for allergic reactions to insects other than bees.
- Large local reactions to hymenoptera stings without any history for anaphylaxis should not be referred.
- All active duty (who have a history of anaphylactic reactions to hymenoptera) are **REQUIRED** to be on immunotherapy to remain on active duty. They **MUST** be sent for referral.
- Skin testing can not be reliably done until around 3-4 weeks after the systemic reaction so urgent referral is not indicated.

Criteria for Return to Primary Care

- Documentation that reaction was not allergic or patient is no longer allergic.
- Completion of immunotherapy. Immunotherapy usually lasts 4-5 years.

Last Review for this Guideline: **September 2009**
Referral Guidelines require review every three years.

Maintained by the Madigan Army Medical Center - Quality Services Division
Clinical Practice and Referral Guidelines Administrator