138 Insect Allergy

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Stinging insects are widespread and are of different orders. Most belong to hymenoptera. The hymenoptera that are important in allergy belong to three families: Vespidae, Apidae, and Formicidae. The Vespidae has the following subfamilies: yellow jacket, yellow hornet, paper wasp, and white-faced hornet. The Apidae has the honey bee, bumble bee, and sweet bee. The Formicidae has fire ant, harvester ant, jack jumper ant, and samsum (Mayr), Pachycondla sennaarensis ant. Usually, it is the female that stings, most often in defense of its nests.

The incidence of allergic reactions to insect stings in children is not exactly known. But figures from epidemiological studies in general populations showed allergic reactions in children to be around 3% of all those who reported history of insect stings.

Children have a different pattern of allergic reactions to insect stings compared to adults. Systemic reactions are less severe and mostly cutaneous in the form of urticaria. Honey bee is the commonest culprit. It is estimated that 60% of systemic reactions in children are mild. But 30% of those who have moderate to severe reaction will have a similar reaction 2 decades later. Although previous studies did not show correlationship between atopy and increased severity of reactions to insect stings, a recent study showed that school-age children with atopic diseases are at a higher risk of having more severe reactions.

Clinical Manifestations

Most insect stings in children cause painful local swelling, with redness and itching. This may last a few hours or a few days. Generalized or systemic reactions are mostly cutaneous: urticaria, flushing, and/or angioedema with pruritus. A small number of older children may develop respiratory symptoms in the form of hoarseness, shortness of breath, and wheezing. Only 30% of children may develop light-headedness, hypotension, and shock, with cardiopulmonary symptoms.

Diagnosis

The diagnosis of insect allergy is essentially clinical. History of exposure to outdoor insects, feeling of sudden pain at the site of sting, and identification of the insect are enough to establish the diagnosis. But, sometimes, identifying the insect may be difficult. Redness and itching at an exposed area of the skin point to an insect sting. Symptoms of anaphylaxis should be recognized immediately by the patient and the physician and the family members. It is very important to recognize symptoms such as nausea, light-headedness, vomiting or cramps, and diarrhea and flushing early after sting in order to establish diagnosis and start treatment immediately.

Laboratory diagnosis is limited to skin test with venom or whole body extract, or in vitro by specific IgE. In case of anaphylaxis, serum tryptase and histamine measurements can be helpful, but negative results do not exclude the diagnosis because they are transient.

Management

In children less than 16 years of age do not give epinephrine unless the reaction is more than cutaneous. For local reactions apply cold compresses. If the local reaction is large and troublesome to the child, give either one dose of prednisolone 2 mg/kg or tapering dose over 2–3 days. If the reaction is painful, a nonesteroidal anti-inflammatory drug should be given. If the lesion is pruritic, antihistamine may be given.

In cases of anaphylaxis, epinephrine intramuscular should be given immediately, in addition to other resuscitation measures with intravenous fluids, corticosteroids, antihistamines, and oxygen. Once these patients recover, they should be referred to an allergist for long-term management. Autoinjectable epinephrine such as EpiPen should be available at all times. Immunotherapy with venom vaccine did not show any difference in the course of insect stings in children, except in the small number with history of anaphylaxis. In the majority of children, venom immunotherapy is not indicated except in moderate to severe reactions. Children who received venom immunotherapy for 3–5 years fared better and had milder reactions on subsequent stings.

Abdelaziz Y. Elzouki (ed.), *Textbook of Clinical Pediatrics*, DOI 10.1007/978-3-642-02202-9_138,

Prognosis

Children aged less than 16 years who suffered a systemic reaction have about a 10% chance of a similar systemic reaction on subsequent sting. Children who were followed for 10–20 years, irrespective of whether they had received venom immunotherapy or not, continued to have reactions on subsequent stings. But those with moderate to severe reactions and venom immunotherapy fared better than those who did not receive venom immunotherapy. The effect of venom immunotherapy in these cases was long lasting.

Prevention

Hymenoptera, whether they are winged or nonwinged, are attracted to bright colors, perfumes, and rotten fruits. Some of them nest on the ground, such as ants and some wasps. Children with history of insect allergy should avoid wearing floral shirts and perfume when they are outdoors. In picnic areas and areas with vegetation, they should avoid walking barefoot and sitting next to garbage cans. Autoinjectable epinephrine such as EpiPen can be lifesaving in case of severe reactions and should be carried by the patient or the child's parents all the time when they are outdoors.

Summary

Allergic reactions to hymenoptera stings are usually mild and mostly cutaneous in nature in the majority of children. The incidence is not exactly known, but it is less than in adults. Long-term follow-up showed that children continue to have reactions on subsequent stings either the same or milder. In those who had moderate to severe reactions should be referred to a qualified allergist for care. Venom immunotherapy is not indicated in the majority of children with insect allergy. But those with moderate to severe reactions on subsequent stings may benefit from venom immunotherapy. Prognosis is generally good. Prevention is important and EpiPen is necessary in cases of severe reactions.

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