

From the Allergy Clinics, Department of Medicine and Pediatrics,
Rhode Island Hospital, Providence, Rhode Island, U.S.A.

PREVALENCE OF BEE STING ALLERGY IN 2,010 GIRL SCOUTS

By

MOHAMMED A. ABRISHAMI, GEORGE K. BOYD
& GUY A. SETTIPANE

In a previous investigation from the clinic, the prevalence of Hymenoptera sting allergy was found to be 0.40 per cent in a population of 4,992 boy scouts (5) between the ages of 11 to 16 years. This past report represented one of the first epidemiologic studies done on bee sting allergy but is incomplete in that comparative figures are not available for females. The purpose of this study is to determine the prevalence of Hymenoptera sting allergy in females using a comparable study group exposed to similar environmental conditions.

METHODS

The official health cards of 2,010 girl scouts ranging in age from about 7 to 16 years, attending local outdoor camps in the summer of 1969 were reviewed. A specific question was asked about any type of allergic reaction the camper may have had. All cards which suggested any possibility of bee sting allergy were removed, and as outlined in previous epidemiologic studies (5,3), parents of these scouts were sent a questionnaire with specific questions detailing the type of reaction, time interval between sting and symptoms, duration of symptoms, treatment received, and name and address of attending physician. The physician so named was sent a second questionnaire, asking for corroboration of the reaction, physical findings and treatment. From the answers on the combined questionnaires, an attempt was made to differentiate those individuals with a definite generalized allergic reaction to Hymenoptera from those with other types of reactions such as a questionable allergic reaction, panic, severe local or toxic reactions. The criteria used was the same as that described in the previous boy scout study (5).

RESULTS

Out of a total population of 2,010 girl scouts, 18 claimed they were allergic to "bee sting". Parents of these 18 scouts were sent questionnaires. After repeated requests, all 18 finally returned their completed forms. Only two physicians did not return their questionnaires. However, one of the patients in question had a classical history of generalized urticaria within minutes after the sting. The other case involved a clear cut local reaction on the face without any systemic manifestations.

Three from a total of 2,010 girl scouts were judged as having had a definite allergic reaction to Hymenoptera sting. Two of these girls had generalized urticaria within twenty minutes following the sting. The third case reacted with nausea, vomiting, perspiration, and a shock-like state shortly after the sting.

All three individuals subsequently underwent hyposensitization therapy by local allergists. At the time of the study, the ages of these three individuals were 11, and two were 12 years old.

The previous boy scout study included an older age group of individuals with an age range between 11 to 16 years. In order to compare the results of this study to those of the previous boy scout report, only those girl scouts between the ages of 11 to 16 years were selected from our population and totaled 846. The prevalence rate of Hymenoptera allergy in this selected age group was found to be 3 out of 846 or 0.35 per cent. When considering the total girl scout population of 2,010 individuals ranging in age from about 7 to 16 years old, the prevalence of Hymenoptera allergy was 0.15 per cent.

DISCUSSION

There are many controversial areas in bee sting allergy ranging from historical events such as a fatality due to a sting reaction in an Egyptian pharaoh (1) to the controversy on

the comparative frequency in an atopic and non-atopic population. *Chafee* (2) reported that in 3,705 of his patients with asthma and/or allergic rhinitis, 14 or 0.38 per cent had true Hymenoptera allergy. Eight out of 14 were females. Although *Chafee's* population is basically different from both our girl and boy scouts population in age, habits, and social background, all three studies were done in the same area, Rhode Island, and were exposed to the same species of stinging insects.

Some reports (4, 6) have stated that under the age of 20, Hymenoptera allergy is more frequent in males than females. This relationship may be present because younger males are usually outdoors more often than females of the same age group, and thus the former have a higher exposure rate to bee stings. In this study, however, the girl scouts are definitely the outdoor type, as are the boy scouts. When this environmental factor is similar in both female and males of the same age group, it is not surprising that the prevalence of Hymenoptera allergy is about the same in both girl and boy scouts, that is 0.35 per cent and 0.40 per cent respectively.

When the total population of 2,010 girl is evaluated, it is found that well over half of these girls are under the age of 11 years, resulting in a decrease of prevalence to 0.15 per cent. A younger age group has not had the same amount of cumulative exposure to bee stings as the older group, and this fact results in a decreased prevalence of Hymenoptera allergy.

SUMMARY

Prevalence of Hymenoptera allergy in a given population appears to vary with the age group and environmental habits of the individuals. When girl scouts between the ages of 11 to 16 years were compared to boy scouts of the same age and in a similar environment, the prevalence of Hymenoptera allergy was similar, 0.35 per cent for females and 0.40 per cent for males.

REFERENCES

1. *Chafee, F. H.*: Correspondence, *J. Allergy* 43, 309, 1969.
2. *Chafee, F. H.*: The Prevalence of Bee Sting Allergy in an Allergic Population, *Acta Allergol.* 25, 292, 1970.
3. *Hagy, G. & Settignano, G. A.*: Bronchial Asthma, Allergic Rhinitis and Allergy Skin Tests Among College Students, *J. Allergy* 44, 323, 1969.
4. Insect Allergy Committee of the American Academy of Allergy, Insect Sting Allergy: *J.A.M.A.* 193, 115, 1965.
5. *Settipane, G. A. & Boyd, G. K.*: Prevalence of Bee Sting Allergy in 4,992 Boy Scouts, *Acta Allergol.* 25, 286, 1970.
6. *Sheldon, J. M., Lovell, R. G. & Matthews, K. P.*: A Manual of Clinical Allergy, 2nd Ed. Saunders, Philadelphia, 1967.

Address:

Guy A. Settignano, M.D.
184 Waterman Street,
Providence, Rhode Island,
U.S.A.

This document is a scanned copy of a printed document. No warranty is given about the accuracy of the copy. Users should refer to the original published version of the material.