

31769

A statistical report of severe reactions from biting insects and the imported and domestic fire ants, indicates that hyposensitization is a beneficial procedure and should be utilized.

BITING INSECT SURVEY: A STATISTICAL REPORT

CLAUDE A. FRAZIER, M.D., F.A.C.A.

REACTIONS and the efficacy of hyposensitization to the stinging insects have been thoroughly studied.^{1,2} However, the results of hyposensitization to those individuals who suffer severe reactions to the biting insects have not been investigated until recently.^{2,3} Also, the stings of the imported and domestic fire ants and their role in causing allergic reactions has not been frequently recognized.^{4,5,6}

To gather data, requests were placed in various medical journals all over the world, asking for case reports of patients who had had severe reactions to biting insects, including fire ants, and the results of hyposensitization if this was attempted. The results of hyposensitization were evaluated as "excellent" if subsequent bites caused no reaction, "good" if the reactions were less than before hyposensitization and "not known" if hyposensitization had not been in progress long enough for evaluation.

Results of Survey

The total number of case reports were 131 and included mosquitoes, moths, martin bugs, sandflies, gnats, chiggers, deer flies, black flies, green

head flies, horseflies, kissing bugs, fleas, ticks, domestic red ants and imported fire ants.

Out of the total number of case reports 61 patients were asked whether they had any associated allergies. Forty-three out of the 61 were found to be suffering from concurrent allergic symptoms.

Of the 43 patients with associated allergies, 18, or 42%, had suffered allergic reactions to stinging insects (bees, wasps, hornets, etc.), eight, or 18%, had had allergic reactions to various drugs (penicillin, tetanus antitoxin, phenol products) and 10, or 23%, had had episodes of contact dermatitis to various material.

The most significant finding of the 43 with pre-existing allergies was that 17, or 39%, had allergic rhinitis. Four, or 9%, had a history of asthma.

The age of the patients varied from two years to 67 years of age. The physicians sending in the case reports were from various parts of the United States, South Africa, Great Britain and Norway.

Fifty-one patients had two or more of the following symptoms to a bite or bites from mosquitoes: generalized urti-

BITING INSECT SURVEY — FRAZIER.

caria involving the dermis and subcutaneous structures, severe pruritis, and swelling at the bitesite. One patient was reported to be drowsy and irritable for three days following an attack; another was reported to have had subsequent feelings of nervousness, lasting six days. Hyposensitization therapy was administered to 37 of these patients. Nineteen had excellent results, 13 had good results, four were reported to have experienced no benefit and one was worse after the hyposensitization therapy.

Eleven patients had two or more of the following symptoms following a bite or bites from the deer fly: generalized urticaria involving the dermis and subcutaneous structures, severe pruritis, swelling at the site of the bite and shortness of breath. One patient was reported to have had asthmatic symptoms and a feeling of dizziness after the insect bite. Hyposensitization therapy was given to eight of these 11 patients. Five were reported to have had excellent results, two had good results and one is listed as not known.

Six patients had one or more of the following symptoms from the bite of a black fly: generalized urticaria involving the dermis and subcutaneous structures, swelling at the site of the bite and wheezing. One 28-year-old female developed anaphylactic shock immediately following the attack of a black fly. Hyposensitization therapy was administered to two of these six patients. One had good results and one is listed as not known.

Six patients had one or more of the following symptoms from the bite or bites of gnats (no-see-ums): generalized urticaria involving the dermis and subcutaneous structures, severe pruritis, swelling at the bite site, wheezing, shortness of breath and a feeling of faintness. Three of these six patients received hyposensitization therapy. One had no benefit and two were reported as not known.

Six patients had two or more of the following symptoms from a bite or bites from a horsefly: generalized urticaria involving the dermis and subcutaneous structures, severe pruritis, swelling at the site of the bite, shortness of breath, nausea and vomiting and a feeling of faintness. One patient suffered shock-like symptoms. Of these six patients none were skin-tested or given hyposensitization therapy.

Four patients suffered one or more of the following symptoms from the bite or bites of the kissing bug: generalized urticaria involving the dermis and subcutaneous structures, swelling at the site of the bite and wheezing. One of the four patients received hyposensitization therapy with excellent results.

Five patients had one or more of the following symptoms after being bit by fleas: generalized urticaria involving the dermis and subcutaneous structures, severe pruritis and swelling at the site of the bite. Of these five patients four are still receiving hyposensitization therapy. Two have had excellent results and two have had good results.

The following insects have had only one case reported for each, with the following symptoms being experienced by the patient: chigger — severe pruritis, swelling at the site of the bite, angioedema and shortness of breath; moth — generalized urticaria and swelling at the site of the bite; green head fly — generalized urticaria involving the dermis and subcutaneous structures and severe pruritis; Martin bug — severe pruritis and swelling at the site of the bite; sandfly — generalized urticaria and swelling at the site of the bite; and ticks — severe pruritis and swelling at the site of the bite. Hyposensitization therapy was not instigated in any of these.

Results of the Domestic and Imported Fire Ant Survey

Eight patients suffered from two or more of the following symptoms after

BITING INSECT SURVEY — FRAZIER

REACTIONS

Type of Insect	No. of Patients	Generalized Urticaria	Severe Pruritis (itching)	Swelling at Bitesite	Angioedema	Wheezing
Domestic Fire Ant	8	X	X	X	X	X
Imported Fire Ant	28	X	X	X	X	X
Mosquito	51	X	X	X	X	—
Moth	1	X	—	X	—	—
Martin Bug	1	—	X	X	—	—
Sandfly	1	X	—	X	—	—
Ticks	1	—	X	X	—	—
Chigger	1	—	X	X	—	—
Deerfly	11	X	X	X	X	—
Black Fly	6	X	—	X	X	—
Green Head Fly	1	X	X	—	X	X
Horsefly	6	X	X	X	X	—
Kissing Bug	4	X	—	X	X	—
Fleas	5	X	X	X	—	X
Gnats	—	—	—	—	—	—
No-See-Ums	6	X	X	X	X	X

Type of Insect	No. of Patients	Shortness of breath	Nausea and Vomiting	Faintness	Anaphylactic Shock Reaction
Domestic Fire Ant	8	X	—	—	—
Imported Fire Ant	28	—	X	X	X
Mosquito	51	—	—	—	—
Moth	1	—	—	—	—
Martin Bug	1	—	—	—	—
Sandfly	1	—	—	—	—
Ticks	1	—	—	—	—
Chigger	1	X	—	—	—
Deerfly	11	X	—	—	—
Black Fly	6	—	—	—	—
Green Head Fly	1	—	—	—	X
Horsefly	6	X	X	X	—
Kissing Bug	4	—	—	—	—
Fleas	5	—	—	—	—
Gnats	—	—	—	—	—
No-See-Ums	6	X	—	X	—

HYPOSENSITIZATION

Type of Insect	Total Number of Patients	Total Number of Patients Hypo-sensitized	Excel-lent	Good	RESULTS No Bene-fit	Worse	Not Known
Domestic Red Ant	8	7	3	1	—	—	3
Imported Fire Ant	28	23	14	5	—	—	4
Chigger	1	—	—	—	—	—	—
Deerfly	11	8	5	2	—	—	1
Black Fly	6	2	—	1	—	—	1
Green Head Fly	1	—	—	—	—	—	—
Gnats	—	—	—	—	—	—	—
No-See-Ums	6	3	—	—	1	—	2
Horsefly	6	—	—	—	—	—	—
Kissing Bug	4	1	1	—	—	—	—
Mosquito	51	37	19	13	4	1	—
Moth	1	—	—	—	—	—	—
Martin Bug	1	—	—	—	—	—	—
Sandfly	1	—	—	—	—	—	—
Ticks	1	—	—	—	—	—	—
Fleas	5	4	2	2	—	—	—

BITING INSECT SURVEY — FRAZIER

being stung by the domestic red ant: generalized urticaria involving the dermis and subcutaneous structures, severe pruritis, swelling at the site of the attack, wheezing and shortness of breath. Of these eight patients seven received hyposensitization therapy. Three had excellent results and one patient had good results. Three of the seven patients receiving hyposensitization therapy have been listed as not known.

Twenty-eight patients suffered from two or more of the following symptoms after being stung by the imported fire ant: generalized urticaria involving the dermis and subcutaneous structures, severe pruritis, swelling at the site of the attack, wheezing, nausea and vomiting, faintness and anaphylactic shock reaction. Of the 28 patients 23 have received hyposensitization therapy. Fourteen had excellent results, five had good results and four are listed as not known.

Summary of the Results of Hyposensitization — Biting Insects

The following is a breakdown of the results of hyposensitization for each insect reported:

Mosquito: Of the 51 cases reported 37 received hyposensitization. Of these 37, 32 or 86%, had good to excellent results; four, or 11%, experienced no benefit; and one, or 3%, suffered more severe reactions after hyposensitization.

Deerfly: Of the eleven cases reported eight received hyposensitization. Of these eight, seven, or 88%, had good to excellent results; one, or 13%, was listed as not known.

Blackfly: Of the six cases reported two received hyposensitization. Of these two, one, or 50%, received good results; one, or 50%, is listed as not known.

Gnats: Of the six cases reported three received hyposensitization. Of these three one, or 33%, received no benefit; two, or 66%, are listed as not known.

Kissing Bug: Of the four cases re-

ported one received hyposensitization therapy with excellent results.

Fleas: Of the five cases reported, four received hyposensitization therapy, with good to excellent results.

Horsefly: Of the six cases reported, hyposensitization therapy was not attempted.

The following insects were covered in the survey with only one case report each: chigger, green head fly, moth, Martin bug, sandfly and tick. Hyposensitization therapy was not attempted in any of these cases.

The total results gained by hyposensitization to biting insects are as follows: of 95 patients reported, 55 received desensitization therapy; 27, or 49%, experienced excellent results; 18, or 33%, experienced good results; five, or 9%, experienced no benefit from the hyposensitization; one, or 2%, experienced more severe allergic reactions after hyposensitization and four, or 7%, are listed as not known.

Summary of the Results of Hyposensitization — Domestic Red Ant and Imported Fire Ant

Domestic Red Ant: Of the eight cases reported seven received hyposensitization therapy. Of these seven, four, or 57%, received good to excellent results and three, or 43%, were listed as not known.

Imported Fire Ant: Of the 28 cases reported 23 received hyposensitization therapy. Of these 23, 19, or 82%, received good to excellent results and four, or 17%, were listed as not known.

Conclusion

Hyposensitization is worthwhile and should be administered in the treatment of severe allergic reactions to biting insects and fire ants.

Note: This is an ongoing survey and I hope that physicians in the United

BITING INSECT SURVEY — FRAZIER

States and around the world will continue to send me case reports of severe allergic reactions to biting insects and fire ants and the results of hyposensitization when administered. Those who have sent in reports on which this survey is based are:

John Attrep, M.D.
Leon Baris, M.D.
Robert B. Beede, M.D.
Harry L. Benson, M.D.
Stanley H. Block, M.D.
Johns Boe, M.D.
Sylvia L. K. Bohrer, M.D.
L. R. Byrd, Jr., M.D.
James A. Caddy, M.D.
Joseph Connor, M.D.
Majorie Crandall, Ph.D.
Stanley L. Davis, M.D.
William B. Deal, M.D.
Allen E. Gale, M.D.
Frederick C. House, M.D.
Jacqueline R. Jorgensen, M.D.
L. Thomas Kenney, M.D.
Martin L. Lee, M.D.
Richard F. Lockey, M.D., Major
K. Frank McCain, M.D.
Nicholas K. Moore, M.D.

Guy O. Pfeiffer, M.D.
Wm. F. Schoenwetter, M.D.
Jules St. Martin Dupont, M.D.
R. Faser Triplett, M.D.
Wm. L. Venning, M.D.

I express my thanks and appreciation to all of the above.

References

1. Frazier CA: *Insect allergy: Allergic and toxic reactions to insects and other arthropods*. St. Louis: Warren H. Green, 1969.
2. Frazier CA: Biting insects. *Arch Derm* 107: 400, 1973.
3. Feingold BF and Benjamin E: Allergy to flea bites: Clinical and experimental observations. *Ann Allerg* 19:1275, 1961.
4. Horen WP: Insect and scorpion sting. *JAMA* 221:894, 1972.
5. Brown LL: Fire ant allergy. *South Med* 65: 273, 1972.
6. Triplett RF: Imported fire ant sensitivity: Successful treatment with immunotherapy. Paper presented at the Southern Medical Association annual meeting, Dallas, Texas, Nov. 16-19, 1971.

Requests for reprints should be addressed to:
Dr. Claude A. Frazier
4-C Doctor's Park
Asheville, North Carolina 28801.

VALIANT IS THE HEART OF MAN

"Valiant is the heart of man. Set in a world whose bounds he cannot trace—armed with puny hands and brain, to do battle against the gigantic forces of sky and sea and earth—beset behind and before by the twin mysteries of birth and death—knowing only the unknowable, searching only the unsearchable, living only to die—man has stood erect as one lifted by God's hand, and has moved ever onward, through centuries of unspeakable pain, fear and frustration, with unconquerable courage and unquenchable faith.

JOHN HAYNES HOLMES
Preface to The Grail of Life, 1919.