

SKIN SENSITIVITY IN ATOPIC FAMILIES

By

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It has been pointed out by many writers that positive reactions to skin testing with allergen extracts may be clinical positives or signs of past or even future sensitivity. Tuft (1) mentions the occurrence of positive skin reactions to pollen in offspring of hayfever patients before onset of clinical symptoms. Many series of results of skin tests on normal individuals have been published showing a large proportion of positive reactions. Grow and Herman (2) found 83 positives out of 150 tested, Rackemann and Simon (3) 30 out of 60. These latter figures are somewhat suspect however as mechanical irritation cannot be excluded owing to the size of the test injection used, i.e. 0.05 c. c. In both these series the "normal" patient chosen was often found to have had a past, or family history of allergy.

Bruce-Pearson (4) in his careful selection of patients into atopic, normal and those with a family history of allergy found the proportion and size of reactions of relatives of allergic patients to be intermediate between normal and atopic. In no series however was any comparison made between the sensitivities found in members of the same family.

In an effort to see whether any correlation exists, the relatives of patients with inhalant allergy who were undergoing hyposensitisation treatment in my practice were tested. Details of these patients are found in Table 1 and where hypo sensi-

TABLE 1

Case	Age	Sex	Disease	Sensitiv.	Result
A	26	Male	Asthma	1,2,HD	++
B	55	Female	"	1,2,4,HD	++
C	7	Male	"	1,2,13,HD	++
D	8	"	"	1,2,7,13,HD	++
E	15	Female	Rhinorr.	1,2,13,HD	++
F	43	"	Hayfever	12	
G	15	"	"	3,12	
H	38	"	Asthma	1,2,12,13,HD	
I	34	Male	Hayfever	1,2,3,4,12,HD	+
J	37	"	Asthma	1,2,3,4,12,13,HD	++
K	47	"	Rhinorr.	1,HD	

Result:— ++ shows almost complete alleviation of symptoms to date.
+ shows improvement in number and severity of attacks.

tisation has been completed long enough to allow of assessment the result to date is included.

With the exception of two brothers both under treatment, none of the relatives tested had any history or symptoms of past or present allergy. All patients under treatment however had a history of other members of their families who suffered from allergic disease. A larger series was found impossible to collect in this practice, as many patients undergoing desensitisation have no relatives on the list and there were also the inevitable number unwilling to undergo testing unless suffering from symptoms.

TECHNIQUE

Each person tested against the standard series of allergen groups as supplied by C. H. Bencard, Ltd. The groups A. 1-13 are as follows, A. 1 common inhalants, A. 2 other inhalants, A. 3 cereals, A. 4 eggs, milk, etc., A. 5 vegetables, A. 6 meats, A. 7 fruits, A. 8 fish, A. 9 shellfish, A. 10 fabrics, A. 11 tobacco, yeast and mushroom, A. 12 mixed pollens, A. 13 mixed moulds, H. D. house dust.

All tests carried out on the flexor surface of the fore-arm,

TABLE 2

Family	A 1.	A 2.	A 3.	A 4.	A 5.	A 6.	A 7.	A 8.	A 9.	A 10.	A 11.	A 12.	A 13.	HD.
Case A	++	++												++
Father		+												+
Mother	++	+												++
Case B PGM	+	+		+										+
Mother	++	++											+	++
Case C	++	++											+	++
Father	+	+											+	+
Case D	++	++					+						+	++
Mother	++	+											+	+
Father	++	+											+	++
Case E	++	+											+	++
Mother	+	+											++	+
Father	++	+											+	++
Case F														+
Husband	+											++		+
Daughter	+												+	+
Case G			+									++		+
Mother	+													+
Father	+													+
Case H	++	++										+	+	++
Daughter	++	+											++	++
"	++	+											++	++
Case I	+	+		+								++		+
Case J	++	++		+								++	+	++
Case K	+	+	+	+								++	+	++
Wife	++	+										++	+	++
Daughter	++	+										++	+	++

+ Acta Allergologica, X, 1

Groups A. 3-12 inclusive by the prick test, groups A. 1, 2, 13 and house dust by intradermal injection of 0.02 c. c. Sensitivity of atopic patient unknown at the time of testing the relatives. The results were recorded as follows, an area of erythema over 6 m. m. diameter with a wheal with well developed pseudopodia + + +, an area of erythema over 6 m. m. diameter and well developed wheal + +, an area of erythema less than 6 m. m. diameter and/or wheal +.

The results are shown in Table 2.

RESULTS

Case G shows no relationship whatever between the sensitivities of the patient and her parents.

Case F. shows the daughter has the same sensitivities as her father who has no allergic history or disease but with no similarity to those of her mother who is under treatment.

Cases B and C. are interesting in that in three generations the sensitivities are closely related, the disease however missing the middle generation.

Case E has a picture of sensitivity that appears a summation of those of her parents.

Case H close but not complete resemblance of daughters' tests to those of their mother who is under treatment.

Cases I and J. These brothers whose atopy manifests itself in different diseases show a remarkably close correlation of sensitivities.

Case K. another case of the child's sensitivity resembling that of the non-allergic parent.

Case A. another example of the child's results showing summation of parents results.

DISCUSSION

In the families tested the results, with the exception of cases F and G show a close similarity between both the sensitivity and also the size of reaction in the atopic and non-atopic members of the family. Testing with the individual components

of the groups as is carried out before desensitisation treatment commenced, although perhaps desirable, was not undertaken with the relatives, owing to the unwillingness of many to undergoing repeated tests although they did not object to attending once for a single test of the groups.

It is realised that firm conclusions can not be drawn from such a small number of cases but they point to the following possibilities.

Children of atopic parents may show a summation of the sensitivities of both parents as shown by cases A C D and E, or the same as one parent even the non-atopic one. Cases F and K are examples of this similarity of sensitivity to that of the non-atopic parent.

The parents of an atopic child have sensitivities to skin tests although suffering from no past or present allergy. No relative of an atopic patient was found to give completely negative results to skin testing.

It may well be that a susceptibility to sensitisation to a particular group of allergens is an hereditary characteristic but this sensitivity may not be of sufficient degree to develop symptoms of allergic disease i.e. may remain subclinical. If however two people with subclinical allergy marry, their offspring are more likely to develop clinical disease.

If these conclusions are correct many skin tests dismissed in the past as "false positives" have in fact been true positives showing subclinical sensitivities that have a real significance, and that may be of use in assessing other members of the family.

Only a similar series of a far larger number of cases than can be collected in a general practice will show whether these conclusions are, in fact true and shed any light on the familial incidence of allergic diseases.

SUMMARY

A small series of skin tests on relatives of patients with inhalant allergy undergoing desensitisation is reported.

A close correlation of results in members of the same family was found to exist in the majority.

Some tentative conclusions are drawn and it is suggested that further investigation into a larger series be carried out to confirm or deny these findings.

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