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Skin tests on hay fever cases with (chemically) different fractions from ragweed pollen.

A. H. W. CAULFEILD.

[*From the Connaught Laboratories of the University of Toronto, and the Toronto D. S. C. R. Chest Clinic, Toronto, Canada.*]

During the course of some experiments on anaphylaxis in guinea pigs with solutions made from ragweed pollen, it was found desirable to work with extracts of more definite or purer chemical composition. This was accomplished through the cooperation of Dr. George Eadie (Department of Bio-Chemistry, University of Toronto). With certain of the solutions thus obtained, Miss Cecile Cohen has been able to induce both active and passive anaphylaxis. Further, it would appear, that, though injections with one fraction will induce an anaphylactic condition to that particular fraction, the animal may not be sensitive to other fractions, even though these other fractions can act as satisfactory sensitizing antigens in varying degrees.

Reports upon both the chemical and immunological aspects of the experiments are in the course of preparation for publication.

Shortly after the earlier results were obtained with guinea pigs it seemed desirable to see what information could be obtained by using the different fractions for skin tests with cases of hay fever known to be sensitive to ragweed. The method used was a skin scratch of about 2 to 3 mm. in length upon which a droplet of NaOH solution was placed and the dried fraction rubbed in with a blunt glass applicator.

The present report is to show that ragweed cases, as judged by the results of the skin tests to (chemically) different fractions of ragweed, exhibit a distinct and individual variation.

While as many as 16 different preparations have been used for the tests, 4 fractions have seemed of more importance than the rest. These are (1) a mixture of albumin and proteose; (2) proteose; (3) glutenin; and (4) a 95 per cent alcoholic extract. To afford a measure of control either dried pollen, acetone precipitate bodies (prepared as advocated by Bauman, Chudnoff and

Mackenzie¹) or a glycerine and salt solution, diluted 1-4, has been used as well.

The results of the tests in 10 of 50 cases tested are given in Table 1. These were obtained by taking in rotation the first and second examples in which the maximum skin reaction was obtained respectively to the albumin and proteose fraction, to proteose, to glutenin, and to the alcoholic extract. In estimating a maximum reaction the so-called controls were not considered. Two more, showing a different combination of results, were added. The 10 examples serve to show that each case will have its own relative degree of positiveness to one or more of the fractions. Tests with any of the so-called controls, namely, the acetone precipitate bodies, whole pollen, or glycerine-salt extract give no indication of this.

As controls 2 normal individuals and 3 grass positive cases of hay fever were tested and found to be negative. In several cases the tests were repeated without relative or material variation. In 2, the albumin and proteose fraction was omitted.

The following summary gives approximately the percentage results for each fraction:

1. Cases in which the albumin and proteose fraction gave the maximum test were 39 in number (78 per cent). Of these 25 (50 per cent) gave no—or at the most a comparatively slight—reaction to proteose, and can in consequence be considered predominantly or exclusively sensitive to ragweed albumin.

2. Cases, in which the proteose fraction gave a marked test approximately equal to any except the control substances, were 17 (34 per cent) in number. Of these, 3 seemed to have an additional, though less marked, sensitization to albumin.

3. With glutenin the tests were negative in 21 cases (40 per cent). The reaction was slight or moderate (comparatively) in 18, and marked in 11 (22 per cent).

4. With the alcoholic extract the tests were negative in 26 cases (52 per cent). The reaction was slight or moderate (comparatively) in 14, and marked in 10 (20 per cent).

From the few cases of hay fever, positive to timothy grass, which have been tested with similar fractions of timothy pollen varying results have been obtained as with the ragweed cases.

¹ Bauman, Chudnoff, and Mackenzie, *PROC. SOC. EXP. BIOL. AND MED.*, 1924, xxi, 226.

Summary: Tests with chemically different fractions of ragweed pollen have been shown to give varying (or no) degrees of positiveness in cases of hay fever: used as antigens in experimental anaphylaxis, there would seem to be comparatively slight evidence of cross sensitization.

Such results suggest that clinically more satisfactory desensitization might be achieved if the preparations of ragweed used were made to correlate with the results of the tests in the individual case.

TABLE 1.
Results of skin tests in selected ragweed cases.
(Figures given are millimeter measurements of wheal.)

Ragweed fractions										
Alcoholic Ext.	8x8	7x5	20x15	neg.	15x8	4	6	8	neg.	neg.
Glutenin	neg.	16x6	neg.	10x8	neg.	?	neg.	neg.	8x6	neg.
Alb. and Proteose	18x15	11x11	12x10	10x7	18x15	8	18x12	18x15	25x25	7x6
Proteose	5	10x8	10x8	neg.	neg.	10	4x4	5x5	15x8	neg.
Controls										
Glycerin Salt Ext.	8x8	5x6	—	—	—	10	7x6	8x8	—	—
Aceton ppt. bodies	16x11	—	10x10	14x14	6x6	—	—	16x11	—	—
Pollen	11x10	8x6	7x7	5x5	7x7	8	7x7	11x10	7	3

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Influence of nutritive condition on initial fall in blood sugar after insulin.

MAX TIITSO (Introduced by J. J. R. MacLeod).

[From the Laboratory of the Insulin Committee, University of Toronto, Toronto, Canada.]

In order to investigate whether prolonged starvation has any influence on the initial fall in blood sugar after subcutaneous injection of insulin, rabbits were starved for 1 or 2 weeks, and the results obtained were compared with rabbits well fed with carrots.

All the rabbits were injected with the same dose of insulin, namely 3 units per 2 kilo body weight. The blood was taken every ten minutes after injection for an hour. The blood sugar was determined by the Shaffer-Hartmann method. After the