

From the Dermatological Dep. of the Rigshospital, Copenhagen
(Chief: Professor H. Haxthausen, M.D.)

BEHAVIOR OF ALLERGIC SKIN REACTIONS AFTER ACTH THERAPY¹

By

H. HAXTHAUSEN

Several clinicians have reported a favorable effect from ACTH therapy in various allergic skin-affections. So it seemed desirable to look into the behavior of allergic skin reactions after treatment of the patients with ACTH, as the favorable effect on the lesion conceivably might be due to a reduction in the reactivity of the skin. Scattered observations have already been published, especially concerning the rapid urticarial reactions, and even though the obtained results have been somewhat divergent, most investigators have found that the intensity of the reactions is not influenced noticeably by ACTH.

In the following some quantitative studies will be published—on rapid reactions as well as on eczematous and other late reactions before and after the administration of ACTH. As to the early reactions, the experiments were performed as follows: On patients with a positive urticarial reaction—mostly patients suffering from Besnier's prurigo—intracutaneous tests were made with antigen in decreasing concentrations, resulting in a series of positive reactions of gradually decreasing intensity, giving a definite concentration limit for a positive reaction. Then the patients were treated with ACTH (Roskilde Pharmaceutical Products), 10 mg. $\times$ 3 daily, which in every instance produced a typical reaction in the

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form of eosinopenia and increased excretion of 17-ketosteroids. After 5 days' treatment the skin tests were repeated on a symmetrical skin area.

Altogether 6 patients were treated in this way, and in every instance the outcome was decidedly negative, the border value for a positive reaction being practically the same before and after the treatment.

The eczematous allergy was examined as follows: On eczema allergics, by means of electrophoresis with a definite concentration of the antigen, a definite voltage and a definite period, an eczematous skin reaction of suitable intensity is produced and read after 24 and 48 hours. Also intracutaneous injections of the antigen in decreasing concentration are given. In this way a late reaction of the tuberculin type is obtained and likewise read after 24 and 48 hours, and thus the border concentration just sufficient for a positive reaction can be determined. Then the patients were given ACTH treatment just like in the first-mentioned experiment. After 5 days of this treatment the electrophoresis-patch-test and the intracutaneous injections were repeated. Four eczema allergics were examined in this way—2 with allergy to mercury, 2 with allergy to chromium—and in these cases too the outcome was negative as the strength of the reaction was quite the same before and after the treatment.

Finally, some experiments were performed on guinea-pigs concerning the influence of ACTH on the eczematous allergy after sensitization with dinitrochlorbenzene. Of 9 guinea-pigs, sensitized beforehand and reacting with about the same strength, 3 were treated with subcutaneous injection of 2 mg. ACTH once a day, 3 with 4 mg. once a day for 5 days, while 3 remained untreated. Attempts to estimate the effect by counting the eosinophil cells had to be given up because of great divergences of the count for the treated animals as well as for the controls. When the test was repeated the reactions of the treated animals were of the same intensity as those of the controls.

Finally, 6 guinea-pigs were sensitized by application of

5 % dinitrochlorbenzene, and 3 of these animals were at once and throughout the period of sensitization given a daily subcutaneous injection of 5 mg. ACTH. Very likely this dose comes near the tolerance limit, as the treated animals became poorly and were losing weight. After 12 days, an epicutaneous test was made with dinitrochlorbenzene, and the treated animals were found to react just as strongly as the controls.

The conclusion of these experiments will be that ACTH in usual therapeutic doses has no distinct influence on the intensity of allergic cutaneous reactions, neither on the rapid urticarial reactions nor on the slow eczematous and papular reactions. Nor was ACTH found to have any effect on the sensitizing process itself when dinitrochlorbenzene was used for allergen.

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