SODIUM PARA-AMINOBENZOATE ("PABA") IN THE TREATMENT OF DERMATOSES*

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Weiner (1) and Loewenthal (2) have recently reported good therapeutic results when sodium para-aminobenzoate ("PABA") was given orally in daily doses of 6 to 16 Gms. to patients with atopic dermatitis and other dermatitides. Weiner noted an excellent and lasting response in 8 of 16 cases of atopic dermatitis. Four other patients showed an initial improvement but had a subsequent relapse. In the other four patients the effect of PABA was unsatisfactory. Loewenthal reported similar results in 18 cases of atopic dermatitis. Thirtyseven additional cases of various forms of eczema showed an even more satisfactory response than the atopic patients.

Loewenthal's rationale for the use of PABA in dermatitis was based on the chemical relationship of the drug to the sulfonamides. He had previously observed good results with sulfapyridine not only in dermatitis herpetiformis, as is generally known, but in a variety of inflammatory skin diseases (3). This led to his investigation of the effects of the "competitive analogue" to the sulfonamides, namely PABA, in these same diseases. Weiner referred to the findings of Zarafonetis et al. (4) who noted a marked reduction of the inflammatory infiltrate in collagen diseases. Zarafonetis reported also on good results with PABA in dermatitis herpetiformis (5).

The European literature of the past 5–10 years contains many reports on PABA. This drug has been used extensively in Italy, France, Germany and Switzerland for the treatment of various dermatoses. Chiale (6), besides giving an apparently complete bibliography of European papers, reports on the treatment of 30 patients: 9 cases of psoriasis, 1 case of scleroderma, and 20 cases of urticaria, eczema and "toxic-allergic" dermatitis. He reported diminution of erythema, cessation of scaling and Koebner's phenomenon in psoriasis, and similarly small improvement in all other diseases studied. Ferrucci (7) emphasized the antipruritic effect of intracutaneous doses of PABA when given every 1 to 3 days; otherwise, his results in eczema with doses similar to those used by Chiale (5) were variable, the chronic cases in general showing a better response than the acute cases.

EXPERIMENTAL

Stimulated by Weiner's and Loewenthal's results (1, 2) we administered sodium para-aminobenzoate to 20 patients with various inflammatory skin

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diseases. The usual daily dose was 16 Gms., given in tablets of 0.5 Gms. each, four times daily, after meals. Occasionally the dose had to be reduced because of gastric upsets; in one case a mixture of 1 part of the potassium salt of PABA to 3 parts of the sodium salt was given because of dependent edema which developed because of the high sodium intake. Apart from these complaints, and a rather frequent but minimal "glycosuria", i.e. presence of a reducing substance in the urine (see Grekin and Zarafonetis (8)), no side-reactions were encountered, even with large doses over periods of 3 months or more. However, it must be mentioned that serious side-effects, e.g. toxic hepatitis and granulocytopenia, have been seen by several authors from PABA (4).

The results are presented in Table 1. Two patients out of a total of 20 showed good and lasting improvements; 4 had transient improvements, in 5 there were questionable results, and in 9 there was no response. The beneficial results were

TABLE 1

Results of Treatment

DIAGNOSIS	NUMBER OF CASES	RESULTS			
		good and lasting	good but transient	question-able	negative
Atopic dermatitis	8	1	1	4	2
Contact dermatitis and other types of dermatitis	6	1	2	1	2
Derm. herpetiform	1	—	1	—	—
Psoriasis	1	—	—	—	1
Lichen planus	1	—	—	—	1
L. erythematosus, chron. discoid	1	—	—	—	1
Lichenoid and discoid dermatosis	1	—	—	—	1
Dermatophytosis pedis with phytid	1	—	—	—	1
Total	20	2	4	5	9

observed more frequently in patients with atopic and contact type dermatitis. The improvement consisted in paling of inflammatory redness, diminution or disappearance of edema, and considerable reduction of pruritus after an initial period of a few days. The effects seemed unquestionably better and more clearly pronounced in the acute cases. Increased pruritus occurred in most cases about one week after start of the treatment with PABA. This pruritus impressed us as a clinical effect of the treatment.

In an attempt at an objective evaluation of PABA on the skin, intracutaneous tests with known allergenic substances were performed before the administration of PABA, and repeated in several patients while under treatment with PABA*. Neither these reactions nor spontaneous exacerbations in a case of atopic hypersensitivity to chocolate could be prevented or suppressed by PABA.

* We are indebted to Dr. B. B. Siegel, Attending in Allergy, for the performance and interpretation of these tests.

Because of the clinical similarity of the effects of PABA to those of cortisone and ACTH, Thorne tests were performed in 8 patients before and during the treatment. In 4 of these patients the tests were done on 3 different occasions, in 3 on two occasions, and in one at the beginning of the treatment. A fasting eosinophil count was done at 8:30 a. m., and immediately thereafter 2–4 Gms. of PABA were given. At 9:30 a. m. a second count was performed, and at 11:30 a. m. a third count (in some cases at 12:30 p. m.). Surprisingly, in half of the tested patients positive results were obtained, i. e. decrease in the number of circulating eosinophils to less than 50 per cent, 1–3 hours after PABA. However, the results showed no relation to the clinical response, and they were generally inconsistent. On the other hand, a control test with physiological saline solution in the patient with the most pronounced PABA response (from 325 eosinophils in 3 hours to 93 eosinophiles, i. e. a drop of 72 per cent) was negative; this seems to speak against the eosinophilic response being a sodium effect. In another case the result of the test with PABA was about the same as with ACTH and adrenalin (a drop of 47 per cent after 3 hours, the same with PABA as with ACTH).

COMMENTS

Since the patients treated with PABA suffered, in the main, from self-limited diseases (allergic contact-type dermatitis) or certain types of dermatoses which improve spontaneously on hospitalization (atopic dermatitis) and show irregular remissions (dermatitis herpetiformis) all the observed results could certainly not be attributed to the PABA treatment. Because of this questionable clinical effect we discontinued the use of PABA after 20 patients had been treated. We are therefore unable to confirm the good results obtained by Weiner, Loewenthal and the European investigators (1, 2, 6, 7). However, we wish to emphasize three points which might permit a different evaluation of the role of PABA in dermatoses. First, because of the apparently good response in a few patients it might be advisable to give PABA a trial in otherwise therapy-resistant cases, especially those of acute character. Second, different modes of administration and dosage might be tried, particularly parenteral administration as practiced be European investigators. This would at least avoid the frequently bothersome gastric upsets which accompany high oral doses. Third, the "stress" effect of PABA, as demonstrated by the Thorne test, not only indicated that PABA has a definite action but this response suggests perhaps another approach to the investigation of the use of PABA and related substances.

SUMMARY

Twenty patients with a variety of inflammatory skin diseases received up to 16 Gms. of sodium para-aminobenzoate (PABA) daily by mouth for periods ranging from 2 weeks to several months. Two of the 20 patients showed good and lasting improvement. Four other cases responded initially but relapsed after a few weeks.

Intracutaneous reactions to known allergens were not changed by PABA.

There were positive Thorne test responses subsequent to the intake of 2 to 4 Gms. of PABA. These positive Thorne tests, though unrelated to clinical responses, indicated a definite effect of PABA.

PABA might be tried in otherwise therapy-resistant inflammatory skin diseases, and its effect by the parenteral route and in lower doses could be investigated.

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