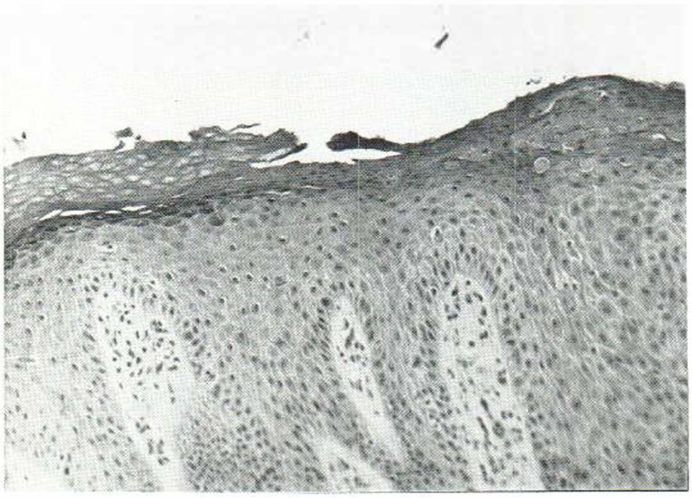


Fig. 3. The scaling is partly parakeratotic, with loss of granular layer.

not exceed one year. Finally, lichen planus and Darier's disease can be excluded on histological grounds.

REFERENCES

1. Altman, J. & Mehregan, A. H: Inflammatory linear verrucous epidermal nevus. Arch Dermatol *104:* 385, 1971.
2. Auken, G.: Psoriasis linearis. Acta Dermatovener (Stockholm) *29:* 159, 1949.
3. Cheesborough, M. J. & Kilby, P. E.: The inflammatory linear verrucous epidermal nevus—a case report. Clin Exp Dermatol *3:* 293, 1978.
4. Gethner, P. J.: Case for diagnosis. Linear psoriasis? Arch Dermatol *83:* 341, 1961.
5. Hodge, S. J.: Inflammatory linear verrucous epidermal nevus. Arch Dermatol *114:* 436, 1978.
6. Leslie, G.: Linear psoriasis. Br J Dermatol *63:* 262, 1951.
7. Maximillian, E. O. & Dockweiler, J. E. S.: Epidermal nevus, psoriasiform, of vulva? Arch Dermatol *93:* 145, 1966.
8. Toribio, J. & Quinones, P. A.: Inflammatory linear verrucous epidermal nevus. Dermatologica *150:* 65, 1975.

Oral Methoxsalen Photochemotherapy of Uncommon Photodermatoses

Warwick L. Morison, H. A. D. White, Ernesto Gonzalez, John A. Parrish and Thomas B. Fitzpatrick

Department of Dermatology, Harvard Medical School, Massachusetts General Hospital, Boston, Massachusetts 02114, USA

Received January 3, 1979

Abstract. Three uncommon idiopathic photodermatoses, refractory to other treatment, responded to oral psoralen photochemotherapy. Two females with photosensitivity in association with atopy, one female with persistent light reaction following a systemic drug-induced photosensitivity and an elderly male with actinic reticuloid were treated.

Key words: PUVA; Photosensitivity; Actinic reticuloid

Patients with severe idiopathic photodermatoses are greatly disabled by their condition leading to an almost hermit-like existence. These patients usually receive little or no benefit from topical sunscreens and, therefore, new approaches to treatment are constantly being sought. Antimalarials have been used for many years and help some patients but are not without risk. Recently β-carotene has been found to produce some alleviation of symptoms in a proportion of patients (4, 9, 10). Recent findings that oral psoralen photochemotherapy (PUVA) is beneficial in atopic eczema (5), mycosis fungoides (2), and polymorphic light eruption (3, 7) prompted us to try this therapeutic modality in patients with

Table 1. *Clinical features and response of patients to treatment*

Patient no.	Age/Sex	Diagnosis	Duration of disease (y.)	Pre-PUVA summer sun tolerance (min)	Post-PUVA summer sun tolerance (h)
1	27/F	Photosensitivity in association with atopy	5	<15	>11
2	12/F	Photosensitivity in association with atopy	6	<5	>8
3	60/F	Persistent light reaction followin systemic thiazides	15	<5	>3
4	81/M	Actinic reticuloid	7	<15	>8

photosensitivity in association with atopy (1,8), persistent light reaction and actinic reticuloid.

PATIENTS AND METHODS

Patients

The diagnoses and features of the 4 patients treated are listed in Table 1. The duration of the mid-day summer sun exposure that is required to trigger or exacerbate the eruption is also noted for each patient. An eruption was present at the time therapy was started in patients 2 and 4.

Oral PUVA therapy

The protocol used in the treatment of psoriasis was also utilized in this study (6). The course of therapy consisted of three exposures weekly until any existing eruption had cleared and/or maximal pigmentation was achieved. Patients 1, 2, and 3 were then advised to expose themselves freely to the sun and to have at least 3 hours of mid-day sun exposure each week. Maintenance PUVA therapy, consisting of one exposure each week, was instituted in patient 4 after completion of the initial clearance phase of treatment.

RESULTS

The existing eruption in patient 2 was cleared by the course of PUVA therapy which also produced a dark, generalized hyperpigmentation in patients 1, 2, and 3. These patients experienced no troublesome side effects from the treatment and, as Table 1 indicates, their sun tolerance was greatly increased. The times listed are the maximum intervals spent in the sun by each of the patients and none of them developed an eruption during the summer immediately following their course of PUVA therapy. Patient 4, with actinic reticuloid that initially involved 20% of his body surface, developed a generalized papulo-vesicular eruption 24 hrs after the first exposure to PUVA therapy. The histology of the new eruption was similar to that of the original rash, with a dense polymorphous perivascular dermal infiltrate containing atypical mononuclear cells with hyperchromatic nuclei and occasional infiltration of the epidermis by these cells. A course of oral prednisone (60 mg/day) therapy was given for 2 weeks while PUVA therapy was continued and both the new and original eruption cleared during that period. Maintenance PUVA therapy was commenced after 6 weeks of treatment and has now been continued for 2 years as the sole therapy with only minimal (<1% body surface) recurrences of the eruption after prolonged summer sun exposure.

DISCUSSION

These 4 patients were severely incapacitated by their illnesses and presented the most difficult therapeutic problems in our population of patients with idiopathic photodermatoses. Topical sunscreens with absorption in both the UVA and UVB spectrum were ineffective in all cases. An adequate therapeutic trial of β-carotene in patients 2 and 4 proved to be of no value. Atabrine was of partial benefit in the patient with a persistent light reaction, but was ineffective in the patient with actinic reticuloid. PUVA therapy, however, provided complete symptomatic relief in all 4 patients with clearing of their eruptions and a subsequent normal tolerance to sunlight. The only side-effect resulting from this treatment was the temporary exacerbation of the eruption in one case.

There are some similarities between the conditions reported here and other diseases previously reported as being alleviated by PUVA therapy. Two of the cases (1 and 2), in addition to their photosensitivity, had features of atopic eczema; this condition is reported to respond to PUVA

treatment (5). However, the response in these 2 patients differed from that seen in atopic eczema. A short course of PUVA followed by frequent sun exposure maintained protection in both patients, whereas atopic eczema required contined maintenance therapy to maintain a clear state. Perhaps it can be inferred from this observation that the pathogenetic mechanism mediating the photosensitivity in atopic individuals differs from the mechanism underlying atopic eczema *per se*. Actinic reticuloid histologically bears a resemblance to mycosis fungoides, a diagnosis that was considered at an early stage in our patient. As in mycosis fungoides (2), continued maintenance PUVA treatment has been necessary to maintain a healed condition in this patient. This is not entirely surprising, since over recent years the eruption in this patient has extended to non-exposed sites, indicating that light alone is not the only factor in his disease.

REFERENCES

1. Frain-Bell, W. & Scatchard, M.: The association of photosensitivity and atopy in the child. Br J Dermatol *85:* 105, 1971.
2. Gilchrest, B. A., Parrish, J. A., Tanenbaum, L., Haynes, H. A. & Fitzpatrick, T. B.: Oral methoxsalen photochemotherapy of mycosis fungoides. Cancer *38:* 683, 1976.
3. Gschnait, F., Hönigsmann, H., Brenner, W., Fritsch, P. & Wolff, K.: Induction of UV light tolerance by PUVA in patients with polymorphous light eruption. Br J Dermatol *99:* 293, 1978.
4. Mathews-Roth, M. M., Pathak, M. A., Fitzpatrick, T. B., Harber, L. C. & Kass, E. H.: Beta carotene therapy for erythropoietic protoporphyria and other photosensitivity diseases. Arch Dermatol *113:* 1229, 1977.
5. Morison, W. L., Parrish, J. A. & Fitzpatrick, T. B.: Oral psoralen photochemotherapy of atopic eczema. Br J Dermatol *98:* 25, 1977.
6. Parrish, J. A., Fitzpatrick, T. B., Tanenbaum, L. & Pathak, M. A.: Photochemotherapy of psoriasis with oral methoxsalen and longwave ultraviolet light. N Engl J Med *291:* 1207, 1974.
7. Parrish, J. A., LeVine, M. J., Morison, W. L., Gonzalez, E. & Fitzpatrick, T. B.: Comparison of PUVA and beta-carotene in the treatment of polymorphous light eruption. Br J Dermatol *100:* 187, 1979.
8. Ramsay, C. A. & Kobza Black, A.: Photosensitive eczema. Trans St John's Hosp Dermatol Soc *59:* 152, 1973.
9. Thune, P.: Chronic polymorphic light eruption. Acta Dermatovener (Stockholm) *56:* 127, 1976.
10. Wennersten, G. & Swanbeck, G.: Treatment of light sensitivity with carotenoids. Acta Dermatovener (Stockholm) *54:* 491, 1974.

Drug-induced Lupus Erythematosus Aggravated by Oral Zinc Therapy

Bo Fjellner

Department of Internal Medicine, Östersund Hospital, Östersund, and Department of Dermatology, Karolinska Sjukhuset, Stockholm

Received January 26, 1979

Abstract. A woman with hypertension had been treated with hydralazine and propranolol for the past 6 years. Leg ulcers and mild joint involvement had been observed for 3 years. When oral zinc therapy was started, multisystemic manifestations of a lupus erythematosus-like syndrome developed within one week. The possible implication of zinc in drug-induced lupus is discussed.

Key words: Zinc; Hydralazine; Lupus erythematosus; Hypertension

Many drugs have been implicated in a lupus erythematosus-like syndrome (5). Hydralazine is one such high-risk drug and about 10% of treated patients develop clinical and laboratory signs of a lupus-like reaction (7). To my knowledge zinc has never previously been incriminated.

CASE REPORT

A 58-year-old woman with atopic eczema as achild, but without any past or family history of autoimmune diseases, had been treated with hydralazine (Apresolin®), from 30 to 200 mg per day, and propranolol (Inderal®), from 120 to 640 mg per day, since 1971, when an essential hypertension was diagnosed. Other medications included polythiazide (Renese®), potassium chloride (Kaliumduretter®) and propylthiouracil (Tiotil®) for shorter periods, and thyroxine (Levaxin®) since 1973 after a radioiodine-treated hyperthyroidism.

Three years after initiation of the antihypertensive therapy, recurrent leg ulcers developed on the distal part of the right leg. They healed slowly after topical treatment but were continually replaced by new ulcers. The patient also began to have mild intermittent migratory arthralgia and arthritis, most frequently affecting the small joints of the hands, wrists, elbows and shoulders.

In the management of the recalcitrant leg ulcers, oral treatment with effervescent zinc sulphate (Solvezink®), 0.2 g (corresponding to 45 mg Zn^{++}) three times daily, was started in August 1977 without a preceding serum zinc determination. Within one week the patient developed fever (39.5°C) and a violaceous rash. She was in relatively good general condition but complained of abdominal distress and had noticed black stools once. The joint involvement was unchanged.