

## **PUVA Treatment of Alopecia totalis**

● LARKÖ and G. SWANBECK

*Department of Dermatology, University of Gothenburg, Gothenburg, Sweden*

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40 patients with alopecia totalis have been treated with PUVA. 26 did not respond, 6 experienced a partial hair regrowth, while 8 got a complete regrowth. However, relapses were frequent, occurring at an early stage. *Key words: Alopecia totalis; PUVA; Therapeutic results.* (Received April 5, 1983.)

● Larkö, Department of Dermatology, University of Gothenburg, S-413 45 Gothenburg, Sweden.

Alopecia areata is an embarrassing and disabling condition for the patient. In a small percentage of the cases it progresses to total or universal alopecia. It has been reported to account for 2% of new outpatient dermatologic visits (1). Spontaneous healing occurs frequently (2). However, total alopecia has a poorer prognosis, with only about 10% permanent regrowth (3).

Among associated diseases, some patients have nail changes, vitiligo, atopic dermatitis, thyreoiditis, and pernicious anaemia.

The treatment of alopecia areata has been frustrating and unrewarding. Intralesional corticosteroids have been tried, but give rather poor permanent results (4). Dinitrochlorobenzene (DNCB), a potent contact allergen, has given impressive results (5, 6, 7). However, it has been suspected of mutagenicity, the significance of which is not clear. Another potent sensitizer, squaric acid dibutylester (SADBE) has also been used, with good results (1). Moreover, this compound is probably not mutagenic. Good results from dithranol treatment of alopecia areata have also been published (8). Swanson et al. have found that DNCB has a better effect on this disease than have potent irritants (9).

Ultraviolet irradiation has been used for many years for the treatment of alopecia areata. Frenzt reported that treatment with a Kromayer lamp is superior to treatment with intralesional steroids (4). PUVA treatment has recently been reported to have a good effect on this disorder (10, 11).

In the present study we have investigated the therapeutic effect of PUVA on alopecia totalis.

## MATERIAL AND METHODS

40 patients participated in the study: 17 men and 23 women. Their mean age was 37.7 years. The mean duration of their alopecia was 13 years and the mean duration of total alopecia, 8.8 years.

Table I demonstrates the number of patients who had diseases reported to be associated with alopecia totalis, such as atopy, diabetes, thyreoiditis, vitiligo and pernicious anemia. Nail changes were observed among 13/40 patients. 9/40 had sometimes experienced a spontaneous remission.

27 patients had received some other form of treatment previously. Of these, 7 said that the previous treatment had been effective.

PUVA treatments were given twice weekly, either locally or by means of whole-body treatment. 26 patients received PUVA on the head only, whereas 13 had whole-body treatment. One patient received both local and whole-body therapy. 8-MOP (8-Methoxypsoralen) was given orally in a dosage of 0.6 mg/kg b.w. 1½ hours before treatment. Doses were increased by 1 J/cm<sup>2</sup> at each treatment until erythema was obtained, up to a maximum of 15 J/cm<sup>2</sup> in order to maintain a persistent erythema.

The number of treatments and energy delivered were noted. The result was classified as: no response, partial regrowth, or complete regrowth.

## RESULTS

14 patients responded to the treatment. Of these, 8 experienced a complete remission. The other 6 were found to have a partial remission. Mean number of treatments necessary to achieve a total regrowth was 44.5, corresponding to 431 J/cm<sup>2</sup>. Of the 8 patients who healed, only 2 remained healed. 5/8 patients were treated for an average of 9.2 weeks after healing. Despite this, the median time to relapse was 10 weeks (Table II).

Regarding various background factors, there seems to be no significant difference between responders and non-responders concerning factors such as associated diseases, time from start of alopecia to PUVA treatment, duration of the disease, and time between

Table I. *Background factors for the 40 patients participating in the study*

Age (mean)	37.7 years
Sex: male/female	17/23
Atopy	13
Vitiligo	3
Pernicious anaemia	1
Duration of total alopecia (mean)	8.8 years
Time from start of total alopecia to PUVA treatment (mean)	7.2 years

Table II. *Data on patients with alopecia totalis treated with PUVA*

	No regrowth	Partial regrowth	Complete regrowth
<i>N</i>	26	6	8
Age (mean) years	42	32.8	27.6
No treatments to regrowth (mean)	—	29	44.5
Local/whole-body treatment	16/9 (1 both)	4/2	6/2
Median time to relapse (weeks)	—	—	10
Time from alopecia totalis to start of PUVA (years)	8.8	3.1	5

the appearance of the first bald spot and total alopecia. However, responders do seem to be younger than non-responders. One patient had to stop treatment because of an elevated alkaline phosphatase level, another because he had no opportunity to undergo treatments, for social reasons.

## DISCUSSION

In the present study we have demonstrated the effect of PUVA treatment on alopecia totalis. 35% of the patients experienced hair regrowth, but only 20% a full regrowth. Relapses were frequent and occurred at an early stage. Median time to relapse was 10 weeks. However, younger patients seemed to respond better than older ones. Whole-body treatment apparently does not produce significantly better hair growth.

Background factors such as associated diseases, duration of the disease and time from first symptom of hair loss to PUVA treatment did not seem to influence the response to PUVA therapy. Weissman et al. reported good results from PUVA treatment of alopecia areata some years ago (10). Lassus et al. have also published good results (11). In his series, 61% with total alopecia got a partial or complete regrowth. 5/18 got more than 60% regrowth. Lassus also found a better response among patients with a shorter duration of the disease. In our series there seemed to be no such difference. The effect of PUVA treatment seems to be of the same order of magnitude as that of dithranol (8). DNCB, however, seems to have a better effect (5, 6, 7).

An important thing to remember is the spontaneous healing of the disease. Treatment with PUVA seems to increase this figure only slightly and temporarily.

In conclusion, treatment of alopecia totalis with PUVA has shown poor long-term results. A permanent good cosmetic result is achieved in only a few percent of the patients. It is our opinion that PUVA treatment for alopecia totalis is of limited value.

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