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PUVA Treatment of Vitiligo: A Retrospective Study of 59 Patients

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We have performed a retrospective study of 59 patients with vitiligo who received PUVA therapy from 1972 to 1986. Sixteen patients had generalized vitiligo and 43 vitiligo in four locations (focal vitiligo). In both groups there were repigmentation in 44% of the patients. Half of the repigmented patients had improved more than 50%. None developed hypertrichosis, actinic keratosis, lentigines, or skin cancer within the observation period. Regardless of the results of PUVA therapy half of the patients thought PUVA was an acceptable therapy. ***Key words: Hypopigmentation; Psoralen; Vitiligo.***

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Parrish et al. reported in 1976 that psoralens in combination with high intensity ultraviolet light (PUVA) could stimulate repigmentation in persons with vitiligo (1). This therapy carries certain health risks and is time-consuming for both patients and doctors. We therefore thought it would be interesting to evaluate the efficacy of the treatment.

PATIENTS AND METHODS

Patients

The study is retrospective and includes 59 patients with vitiligo. Forty-one females and 18 males were treated with PUVA in the Department of Dermatology, Marselisborg Hospital, Denmark, during the period 1972 to 1986. The age range of the patients was 26 to 66 years. We extracted the following information from patients records: photographs, family history, sex, age at start of vitiligo, age at start of treatment, localization of vitiligo (face, hands, feet, trunk, arms, legs), number of treatments before start of repigmentation, and total number of irradiation. Vitiligo was graded in generalized vitiligo, which is defined as vitiligo in all localizations, and focal vitiligo, which is defined as vitiligo in less than six localizations (see above). The degree of pigmentation was graduated as 0%, 25%, 50%, 75%, or 100% by extracting data from the medical records and comparing photographs before and after treatment. These photographs were taken according to a standard schedule at each control visit, which took place once yearly for 5 consecutive years following cessation of PUVA therapy, in order to evaluate occurrence of skin cancer. This is according to Danish Health regulations.

Irradiation

UVA-irradiations were given in a UVA cabin with 39 Philips light tubes TL/40/09 (flux 9,0 mW/cm^2). One hour before exposure to UVA-light patients took psoralen. Treatment was given twice or three times weekly. Different psoralens were used during the observation period: methoxypsoralen, 8-methoxypsoralen, or 4,5,8-trimethylpsoralen. The treatment schedule was 1/2 joule/cm^2 at start, increasing at every third treatment with 1/2 joule/cm^2 up to 4 joule/cm^2, which was the maintenance dosage. The increments were prolonged if burning of the skin occurred. The various psoralens were given in recommended dosages.

Follow-up

At the time of evaluation we contacted 53 of the 59 patients who were treated with PUVA. Four patients had left the country and 2 were dead. The patients were contacted by telephone and asked for distribution of vitiligo at present compared with the distribution when treated. In addition we asked if sunbathing was now easily tolerated, or if the patients had observed skin tumors following their last 5-year control visit. Finally we asked if PUVA therapy had been an acceptable and worthwhile treatment.

RESULTS

Among the 59 patients 31% had a family history of vitiligo. Sixteen patients (27%) had generalized vitiligo and 43% focal vitiligo. Patients with focal vitiligo had symptoms in up to four different locations. None of the patients had vitiligo exclusively on the face, hands, or feet. The mean age at start of vitiligo was 21 years; the mean age at start of treatment was 30 years.

The mean cumulative UVA-dose was 338 joule/cm^2 for all patients except one patient who received a total of 3.044 joule/cm^2. The maximal recommended limit for UVA in our department is 1.200 joule/cm^2.

The results of therapy are presented in Table I. Adverse effects were erythema (36% of patients), pruritus (20%), and nausea (17%). None of the patients stopped treatment due to adverse effects.

By interviewing 53 patients (90%) by telephone it appeared that the pigmentation after treatment had worsened in 40%. The repigmentation was estimated at the time of the interview, i.e. from 1 to 14 years after PUVA treatment. Before PUVA treatment sunburning was a problem in 92% of the patients, but after therapy it was no longer a problem in 47%. Lingterm effects of skin tumors were not observed by the patients. Regardless of the efficacy of PUVA therapy, 50% of the patients found PUVA were an acceptable therapy. Those who did not appreciate the therapy found it too time-consuming.

DISCUSSION

Previous studies have found that focal vitiligo responds better to PUVA therapy than generalized vitiligo (2, 3), but no clear definition has been given for focal and generalized vitiligo. We found no difference in the treatment efficacy of focal and generalized vitiligo. Nor could we relate specific localizations of vitiligo to the degree of repigmentation. Vitiligo of hands and feet seems however more therapy-resistant than vitiligo in other localizations, as previous studies have demonstrated (2–5).

Table I. *Results of therapy*

	No. of patients	Repigmentation	No. of treatments before pigmentation	Total no of treatments
Localized vitiligo*	1	100%		
	7	75%	17 (5–60)	99 (14–305)
	4	50%		
	7	25%		
	22	No effect	–	33 (5–210)
Generalized vitiligo	0	100%		
	2	75%	13 (4–100)	144 (20–202)
	3	50%		
	2	25%		
	9	No effect	–	59 (6–159)

*Two patients omitted due to lack of information about degree of pigmentation.

We can confirm that it is necessary to give 60–100 PUVA treatments to patients with vitiligo before the effect can be firmly evaluated (2). Table I demonstrates that all patients who did not respond had received approximately 60–100 treatments. Half of the patients mentioned that they could not accept PUVA because it was too time-consuming. It is therefore important to inform the patients about this aspect of PUVA before starting the treatment.

The only effective treatment for vitiligo is at present PUVA. Patients should be well-informed about the length of therapy and the chances for success. PUVA will imply a risk for development of lentigines, actinic keratosis, and squamous cell carcinoma, but not of malignant melanoma. A large study in USA demonstrated a significant increase of skin cancer following PUVA therapy for 3 or more years (6, 7).

We have observed our patients for 5 years following PUVA treatment. At the time of this study we have not found any malignant or premalignant changes in the skin.

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