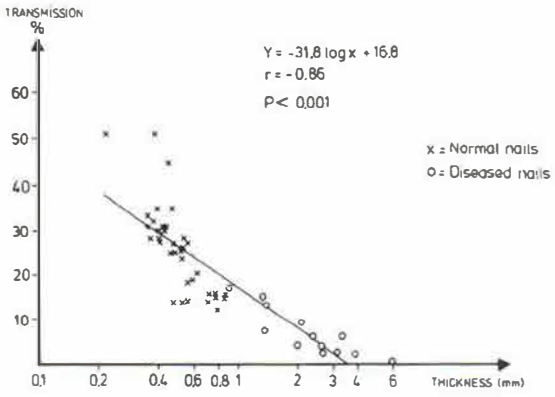

Fig. 1. Transmission percentage of 12 kV Bucky rays through nails with the thickness as given on the abscissa.

Thereafter a nail was placed in the ionization chamber and the exposure time for the corresponding radiation dose was determined (3). The measurements were performed with both Grenz-rays and X-rays and each value presented is an average of two measurements. As the output of the X-ray unit was kept constant during the measurements, the transmission could be determined as the ratio between the exposure times at the two measurements,

$$\text{i.e. transmission} = \frac{\text{ref. value (minutes)} \times 100}{\text{time (minutes) with nail}}$$

Nail appearance and prior localization were registered. The thickness of the nail was measured twice with a screw micrometer. The mean value was used and for statistical purposes, linear regression analysis was used.

RESULTS

The thicknesses of normal and diseased nails are shown in Table I together with the transmission of 12 kV Grenz-rays and 29 kV X-rays through the nails.

The relation between nail thickness and transmission of 12 kV Grenz-rays is seen in Fig. 1. There is a very high degree of correlation ($r=0.86$, $p<0.001$) between log thickness and transmission.

Table II. *Rads to be given to the nail if the nail bed is to receive 100 rads*

	Normal fingernails		Diseased nails
	Children	Adults	Adults
Bucky, 12 kV	275	400	1 400[a]
X-ray, 29 kV	100	125	175

[a] This dose is so high that it will damage the skin around the nail if it is not properly protected.

DISCUSSION

In clinical practice it is obvious that measurements of nail thickness cannot be made. Therefore the results have been transformed into a simple scheme which we believe can be of some practical value (Table II). It can be seen from this that in the treatment of thick nails (1–4 mm) a sufficient radiation dose cannot be given with Bucky rays without risk of skin damage, and this implies that Bucky rays should only be applied to nails of normal thickness (<0.9 mm), i.e. all normal nails except some big toe nails. X-rays 29 kV, however, can be used in the treatment of normal as well as pathologically thickened nails.

With the doses as given in Table II the greatest therapeutic effect is obtained with the least risk of side effects.

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Normal Function of the Thyroid Gland in PUVA-Treated Psoriatics

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Abstract. Ten psoriatics who were started on therapy with psoralen plus long-wave ultraviolet radiation (PUVA) were investigated for a possible influence of the treatment on the thyroid gland function. No statistically significant changes were found in the levels of serum thyroxine, triiodothyronine or thyrotropin obtained after 2 and 4 weeks' therapy and 3 months after cessation of therapy.

Key words: Psoriasis; Photochemotherapy; PUVA; Thyroid gland

Table I. *Data of 10 patients treated with PUVA for psoriasis*

Patient	Sex	Age (yrs)	Clinical effect of PUVA	Total UVA dose (Joules/cm²)
1	F	67	Improved	113
2	F	56	Improved	45
3	M	46	Improved	190
4	F	16	Improved	46
5	F	40	Improved	27
6	F	56	Cleared	76
7	F	22	Improved	81
8	F	37	Improved	81
9	M	66	Improved	51
10	M	27	Improved	46

Oral psoralen plus long-wave ultraviolet radiation (PUVA) is a well-established efficacious therapy for psoriasis (4, 5, 10). The effect of PUVA is believed to be due to co-valent linkage of psoralen to pyrimidine bases of DNA, which requires ultraviolet irradiation at 365 nm (6). Psoralen–DNA photoadducts are produced and the DNA replication and mitoses in the lesions are consequently suppressed (2). As the thyroid gland is located just beneath the skin, PUVA treatment might be expected to interfere with its function. This possibility was investigated in the present study.

PATIENTS AND METHODS

The study comprised 10 psoriatics who were started on PUVA therapy (Table I). None of the patients had a history of thyroid gland dysfunction. PUVA treatment was given according to a fixed schedule which has been proved effective for psoriasis (9). 8-methoxypsoralen (Meladinine®, The Memphis Chemical Co.), about 0.5 mg per kg bodyweight, was administered orally 2 hours before UVA irradiation. The treatment was given three times a week. The UVA dose was gradually increased from 1.5 Joule/cm² up to about 6 Joules/cm², depending on the clinical response.

Serum thyroxine (T_4), serum triiodothyronine (T_3) and serum thyrotropin (TSH) were measured before the start of PUVA, after 2 and 4 weeks' therapy and 12 weeks after it was stopped. T_4 and T_3 were measured by a radioimmunoassay technique, and TSH by a double antibody radioimmunoassay technique (1). All blood samples, which were obtained in a fasting state, were submitted immediately to centrifugation and frozen as serum samples at −20°C until the study was completed. Student's *t*-test for paired data was used for statistical analysis of the results.

RESULTS

In all patients except one (No. 3) psoriasis was completely or almost completely healed by PUVA treatment for 4 or 5 weeks (Table I). Results of the T_4, T_3 and TSH analyses are shown in Table II. Statistical analysis of the results revealed no significant differences between any of the values ($p>0.05$).

DISCUSSION

Since Parrish et al. (5) reported in 1974 on their excellent results with PUVA therapy for psoriasis, the possible long-term hazards of photochemotherapy have been studied. In a prospective study comprising 1 373 patients treated with PUVA for psoriasis the incidence of skin cancers was found to be higher than expected for a similar population group matched by age, sex and geographic location (8).

Recently, the inhibitory effects of PUVA on the DNA synthesis of circulating lymphocytes was reported (3). This raises the possibility of hazards

Table II. *Serum thyroxine (T_4), triiodothyronine (T_3) and thyrotropin (TSH) levels before, during and after PUVA treatment for psoriasis*

Normal ranges and numbers of patients are given in parentheses

	Before PUVA	After 2 weeks PUVA	After 4 weeks PUVA	12 weeks after cessation of PUVA
T_4 nmol/l (65–124) Mean±S.D.	91.2±28.6 (10)	90.5±17.8 (10)	95.7±23.6 (7)	84.0±26.6 (9)
T_3 nmol/l (1.10–2.30) Mean±S.D.	1.64±0.38 (10)	1.62±0.38 (10)	1.74±0.55 (7)	1.50±0.32 (9)
TSH mU/l (<3.5) Mean±S.D.	0.7±0.4 (10)	0.6±0.2 (10)	0.8±0.4 (7)	0.6±0.4 (9)

$P>0.05$

from nucleic acid damage to other cells and tissues exposed to PUVA. Schill et al. (7) investigated spermatogenesis in 9 psoriatics receiving PUVA and found it to be unaffected by the treatment. The notion that PUVA might interfere with the function of the thyroid gland due to its unprotected location just below the skin surface was not supported by the present study. However, the number of patients investigated was small and the UVA dose was less than used by others. Therefore, no definite conclusions can be drawn until it has been studied whether prolonged therapy and higher PUVA doses interfere with the function of the thyroid gland.

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Malignant Melanoma and Histiocytofibroma

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Abstract. In patients with malignant melanoma, histiocytofibromas often appeared to be present. The frequency of this association has been determined in 60 female and 40 male patients, and compared with age- and sex-matched controls. Histiocytofibromas are significantly more common in females with malignant melanoma than in controls. This relationship is not found in males. Therefore, it would seem important to make a careful examination of nevocytic nevi in women having this benign tumour because of the high risk of developing a malignant melanoma.

Key words: Melanoma; Histiocytoma

Fibrous histiocytic tumours of the skin are a common phenomenon and are variously described as dermatofibroma, histiocytoma, sclerosing haemangioma, and subepidermal nodular fibrosis (2, 4). These lesions consist of mixture of histiocytes and fibroblasts and can display variable histological patterns, depending on the predominant cell content. In the absence of excision, it is difficult to ascertain the clinical differences between these tumours, and the term "histiocytofibroma" would seem preferable.

In patients with malignant melanoma, one or several histiocytofibromas appeared to be a common discovery at the first, or subsequent examinations, when carefully examined. This is indeed rather commonplace, as the sites of predilection are the lower legs, especially in females and such findings are classically reported. However, we wanted to determine whether this association of malignant melanoma with histiocytofibroma is coincidental or not.

PATIENTS AND METHODS

One hundred patients with malignant melanoma were examined. Sixty of the patients were female and 40 were male. In each sex, they were classified into 10-year age groups and according to type of melanoma (criteria of Clark et al.) (1).

The controls were matched with the patients with respect to age and sex. In each 10-year age group, the ratio