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Psoriasis of the Nails Treated with Grenz Rays: A Double-blind Bilateral Trial

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Lindelöf B. Psoriasis of the nails treated with grenz rays: A double-blind bilateral trial. *Acta Derm Venereol (Stockh)* 1989; 69: 80-82.

The effect of grenz ray therapy in the treatment of psoriatic nails was assessed in 22 patients by randomly allocating active treatment to the psoriatic nails of one hand while the other one, which received simulated therapy, served as a control. Five Gy of grenz rays were applied on 10 occasions at intervals of 1 week. There was a significantly better response to active treatment compared with the untreated control. However, the therapeutic response was moderate. It is concluded that grenz ray therapy could be useful only when the psoriatic nails are of normal thickness. (Received June 1, 1988.)

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Various therapeutic principles are used in the treatment of psoriatic nails, but the results are usually unpredictable and not always successful. For a recent review see Scher (1). X-rays (1, 2) as well as PUVA (3) have been used to irradiate psoriatic nails with good to moderate response. Grenz rays (ultrasoft X-rays) have also been widely used either alone, or in combination with topical medicaments. However, little has been written about the effect of grenz ray on the nail changes of psoriasis. The present double-blind placebo controlled trial was, therefore, designed to assess the efficiency of grenz rays on psoriatic nails. The exposure dose, kV and fractionation of the grenz ray therapy is the standard regime which has been used at the Department of Dermatology, Karolinska Hospital, Stockholm, for several years.

PATIENTS AND METHODS

Patients

Twenty-four patients with psoriasis of the nails of both hands took part in the study. Age range was 29-75 yr. Duration of disease was 1-15 yr. The patient had been untreated for at least 6 months before the start

of the study. The psoriatic nails of the patients had various degrees of severity, ranging from nails of normal thickness with pits to very thickened hyperkeratotic nails.

Grenz rays

The grenz ray machine factors were 10 kV, 10 mA, half-value layer 0.02 mm Al, half-value depth in tissue 0.5 mm, focus skin distance 10 cm.

Experimental procedure

The design of the study was that of a double-blind trial. Each patient received 5 Gy of grenz rays given on 10 occasions at intervals of 1 wk. The psoriatic nails of one hand received active treatment, the other hand was treated with placebo. This was done by allowing the apparatus to hum without irradiation. The nurse treating the patient gave the active radiation or placebo treatment according to a randomized pre-determined code. Neither the patients nor the evaluating doctor knew which side had received active grenz ray therapy.

Clinical evaluation was done before the grenz ray therapy and after the 10th treatment. Photographs of the involved nails of both hands were obtained prior to the grenz ray treatment. The nails were examined for signs of psoriasis, i.e. pitting, onycholysis, "oil drops", subungual hyperkeratosis, onychorexis and psoriatic involvement of the proximal nail fold. For each nail a protocol was prepared. When the patients were reassessed after 10 weeks, the improvement of each of the psoriatic nail signs was judged and an overall improvement was scored for each hand. The improvement was scored as: almost complete recovery, moderate improvement, slight improvement and no improvement. Active treatment was then given also to the psoriatic nails of the former placebo-treated hand of the patient. The patients were then followed for 6 months. Any side effects were recorded during the period.

RESULTS

Of the 24 patients who started the trial, 2 patients failed to participate throughout the study. Both withdrew because of illness in their families. Of the 22 remaining patients, one patient showed almost complete recovery of the grenz ray treated nails, 7 showed slight improvement and 14 showed no improvement at all. In one patient the placebo treated nails improved slightly. This difference of improvement was statistically significant ($p < 0.05$, McNemar's test). All the nails which responded were of normal thickness. No hyperkeratotic nails responded. Six months after the grenz ray-treatment the treated psoriatic nails of 2 patients had improved moderately and the nails of 2 patients had become slightly worse. The nails of the remaining 18 patients were unchanged. Five patients showed slight pigmentation of the grenz ray-treated nail fold. No other local or systemic adverse reactions were noted.

DISCUSSION

In this study it has been shown that grenz ray therapy has a significantly better effect on psoriatic nails than placebo treatment. However, this response was moderate. No nail healed completely and during the follow-up period there were no clear signs of further improvements.

In contrast to this study, X-ray therapy has proved to produce excellent and permanent results (2), but the quality of the radiation was quite different in comparison to the present study, 100 kV versus 10 kV. The much smaller penetration of grenz rays (5–20 kV) in comparison to harder X-rays (30–100 kV) explains the inability of grenz rays to improve thick psoriatic nails. It has been suggested that grenz rays should only be applied to nails of normal thickness (4). This impression was supported by this study, because of the fact that all of the nails which responded to grenz rays were of normal thickness, whereas thickened nails did not respond. For the treatment of pathologically thickened nails 29 kV X-rays (4), 40–50 kV (1), or 100 kV (2) can be used. However, certain safety aspects can be applied on this matter. The half-value depth in tissue of grenz rays is 0.5 mm in comparison to 1–20 mm for 20–100 kV.

Grenz rays have also been proved to be safe when certain therapy recommendations are followed (5).

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311 nm UVB Lamps in the Treatment of Psoriasis with the Ingram Regimen

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Karvonen J, Kokkonen E-L, Ruotsalainen E. 311 nm UVB lamps in the treatment of psoriasis with the Ingram regimen. *Acta Derm Venereol (Stockh)* 1989; 69: 82-85.

A new experimental fluorescent lamp emitting UVB mainly in a narrow peak around 311 nm was compared with a conventional broad band UVB lamp in the treatment of psoriasis with the Ingram regimen. In 20 patients one arm was treated with the new lamps and the other arm with conventional lamps. In 12 patients the results were same, but the new lamp was more effective in 8 patients. In another trial, 53% of 17 patients treated with the new lamp showed good results compared with 30% of 23 patients treated with conventional lamps. In conclusion, the 311 nm UVB lamp is at least as effective as the conventional broad band UVB lamps in the treatment of psoriasis with the Ingram regimen. (Accepted August 10, 1988.)

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UVB-phototherapy is common in the treatment of psoriasis either alone or in combination with topical preparations. In addition to therapeutically effective UVB of wavelength about 310 nm (1, 2), conventional broad band UVB lamps also emit a considerable amount of irradiation in the wavelength range below 300 nm, which may cause an increased risk of skin cancers and other side effects. A lamp emitting only therapeutic UVB but not short wave UVB might be an ideal lamp for treatment of psoriasis. We compared traditional UVB-lamps (Fig. 1) with a new experimental fluorescent lamp (Philips TL 01) having a narrow spectral peak at 311 nm (Fig. 2) for the treatment of psoriasis with the Ingram regimen.

MATERIAL AND METHODS

Lamps

The new experimental fluorescent lamps (Philips TL 01) have an emission spectrum dominated by a narrow peak at 311 nm (3). Twenty-two Philips TL 01 lamps were installed in an ordinary PUVA cabin