Comparison of Trioxsalen Bath and Oral Methoxsalen PUVA in Psoriasis

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Fifty patients with chronic plaque psoriasis were treated with trioxsalen bath PUVA and 43 patients with oral methoxsalen PUVA. The two treatment regimens gave similar results; 75% and 77% of the patients had excellent or good clearing and a follow-up of one year revealed relapses in 61% and 58% of the patients, respectively. The cumulative UVA dose remained significantly lower in bath PUVA (mean 23.5 J/cm^2) than in oral PUVA (mean 131 J/cm^2). Nausea and headache occurred in 21% of the patients receiving oral PUVA but in none in the bath PUVA group. Local side-effects were found in 30% of the patients receiving bath PUVA and in 17% of the patients in the oral PUVA group. *Key words: Photochemotherapy; Psoralens; Side-effects.* (Received Juni 13, 1984.)

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The efficacy of systemic photochemotherapy with oral methoxsalen and UVA (oral PUVA) in the treatment of psoriasis is well documented. Marked improvement in about 90% of patients, with a clearing phase of 5–10 weeks, has been achieved in large multicentre trials (1, 2). The disadvantages of oral PUVA are nausea and headache after taking methoxsalen tables, but other systemic side-effects such as hepatotoxicity seem very infrequent (2). In addition to the oral route, the skin can be photosensitized by topical application of psoralens (3, 4, 5). Trioxsalen (4,6,8-trimethylpsoralen) is more effective than methoxsalen, and if psoriasis involves large areas of the body trioxsalen can be given in a bath (3). Such a treatment, called bath PUVA, has been reported effective in psoriasis and the advantages of bath PUVA over oral PUVA seem to include avoidance of systemic side-effects (3, 6, 7, 8).

The lack of direct comparisons between trioxsalen bath PUVA and oral methoxsalen PUVA in large patient populations stimulated the present investigation. We treated two groups of patients with psoriasis using either bath or oral PUVA and recorded the efficacy, side-effects and the rate of relapses for both groups.

PATIENTS AND METHODS

Fifty patients with plaque psoriasis received bath PUVA and 43 patients oral PUVA. The mean age of the patients (42 vs. 43 years) and the mean duration of psoriasis (15 vs. 17 years) were similar in both groups. Most patients had severe psoriasis and 40% of the patients had been treated previously with methotrexate and several (6% vs. 15%) had received arsenic. Eleven patients were treated twice and the data from the second treatment course were included in the total analysis. In bath PUVA, 50 mg of trioxsalen (Tripsor®, Orion Pharmaceuticals Ltd, Espoo, Finland) was added to 150 l of warm water in a bath-tub. After a bath of 15 min the UVA radiation was given in a PUVA-22 cabin (Astra-Sjuco, Ltd, Helsinki). The initial UVA dose was 20 sec (0.20 J/cm^2) and the maximum dose 4 min (2.4 J/cm^2). In oral PUVA the patients took 0.6 mg/kg methoxsalen (Puvaderm®, Star Ltd, Tampere, Finland) after a meal and two hourse before the UVA exposure. The initial UVA dose was 3 min (1.8 J/cm^2) and the maximum dose was 24 min (14.4 J/cm^2). Both patient groups were treated three times a week and the UVA dose was increased every week according to a standard regimen. Patients were examined after every ten treatments and laboratory investigation included blood white cell count, liver enzymes, creatinine and urine sediment. At the end of the treatment the result was graded as excellent (100% clearing), good (80–95%), some improvement, no change or worse. No maintenance treatment was given and the patients were followed up for relapse rates over one year.

Table I. *Treatment results with bath and oral PUVA*

Number of treatmenst	Results				
	Excellent or good	Some improve-ment	No change or deteri-orated	Number of treatments (mean (range))	Total UVA dose, J/cm² (mean (range))
Trioxsalen bath PUVA (n=56)	42 (75 %)	8 (14 %)	6 (11 %)	23.1 (4–56)	23.5* (0.7–143)
Methoxsalen oral PUVA (n=48)	37 (77 %)	7 (15 %)	4 (8 %)	20.9 (4–42)	131.1* (7.5–543)

* Significant difference ($p<0.01$, Mann-Whitney U-test).

RESULTS

The results are shown in Tables I and II. The treatment results were very similar and the only significant difference was the total UVA dose required for clearing. There were no differences in the relapse rates during the follow-up period. Of the patients with excellent or good treatment results 24 (61 %) in the bath PUVA and 21 (58 %) in the oral PUVA group had a relapse. Systemic side-effects were more common in oral PUVA group and local side-effects in bath PUVA group (Table II). These side-effects caused the cessation of treatment in some patients but no cessation occurred because of abnormal laboratory values.

DISCUSSION

Hannuksela & Karvonen (6, 9) reported excellent or good results in 92 % of their patients with psoriasis treated with trioxsalen bath PUVA. The reason for the lower figure in our study may be in the patient selection or the differences in the treatment schedules. Many of our patients had severe chronic psoriasis previously treated with methotrexate and arsenic with only moderate or brief effects and therefore, excellent or good clearing in only 75 % of our patients is easy to understand. In the present study we could compare the treatment results of bath PUVA to those obtained with ordinary oral methoxsalen PUVA. Both PUVA regimens gave good results in almost the same percentage. The time required

Table II. *Frequency of side-effects*

Number of treatments	Side-effects		Cessation of treatment because of side-effects
	Systemic[a]	Local[b]	
Trioxsalen bath PUVA (n=56)	3 (5 %)	17 (30 %)	7 (13 %)
Methoxsalen oral PUVA (n=48)	10 (21 %)	8 (17 %)	2 (4 %)
P-value (Chi-square)	<0.05	NS	NS

[a] Nausea, vomiting, headache, general pruritus.
[b] Severe erythema, burning, rash.

for clearing was slightly shorter in oral PUVA but the only significant difference was the total UVA dose. In bath PUVA this was only 18% of that needed in oral PUVA. In the present study we were also able to compare the relapse rates during a follow-up of one year. The frequencies were 61% and 58%, and again no difference between bath and oral PUVA were found.

The side-effects of oral PUVA consist of nausea, headache, pruritus, severe erythema and burning (1, 2). In agreement with this we found systemic side-effects in 21% and local side-effects in 17% of our patients taking oral PUVA. However, these were often mild and only two patients were unable to continue the treatment. In contrast to the low figure (5%) of systemic side-effects in bath PUVA, local side-effects were quite common. Seventeen patients (30%) suffered from severe erythema or burns, which caused discontinuation of treatment in six cases.

The present patients were treated concomitantly in the out-patient clinic of our hospital and we able to compare the acceptability of both PUVA regimens. No extra personnel were required for bath PUVA, the bath was easy to administer and lasted 15 min. Thus the cost-effectiveness and patient acceptability do not seem to be different from those of oral PUVA (10).

In conclusion, the present study confirmed that trioxsalen bath PUVA is as effective as the ordinary oral methoxsalen PUVA in the treatment of chronic plaque psoriasis. The treatment results and relapse rates were similar in both PUVA regimens but differences were found in the occurrence of systemic and local side-effects.

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