Randomized Double-blind Comparative Study of 8-Methoxypsoralen Bath Plus UV-A Treatment Regimens

Estudio comparativo randomizado a doble ciego de regímenes de tratamiento con 8-metoxypsoraleno en baño-PUVA

To the editor:

Psoralen–UV-A (PUVA) therapy with topical 8-methoxypsoralen (8-MOP) is a widely used treatment for patients with moderate to severe psoriasis. The current regimen for bath PUVA involves soaks in a diluted 8-MOP bath followed by UV-A irradiation twice weekly. Bath PUVA has several advantages over oral PUVA as it avoids the adverse effects of oral psoralen administration (gastrointestinal disturbances and the need to use protective eyewear for 24 h after ingestion), produces a more direct psoralen bioavailability to the skin, and requires lower doses of UV-A, resulting in shorter treatment times.

Previous studies investigating the characteristics of PUVA erythema found peak erythemal responses at 96 to 120 h. In addition, we have previously shown that skin remains significantly photosensitive for up to 2 days following trimethylpsoralen (TMP) bath PUVA, possibly due to the presence of psoralen–DNA monoadducts. These findings suggest that in order to achieve the same therapeutic response it may not be necessary to repeat photosensitization prior to the second weekly exposure to UV-A. We have examined this hypothesis.

Approval for the study was obtained from the Tayside Research Ethics Committee, Dundee, Scotland. Patients with symmetrically localized plaque psoriasis on the limbs who were referred for bath PUVA were invited to participate in the study; all participants signed a written informed consent form. The subjects recruited had a minimal photosensitivity for up to 2 days following trimethylpsoralen (TMP) bath PUVA, possibly due to the presence of psoralen–DNA monoadducts. These findings suggest that in order to achieve the same therapeutic response it may not be necessary to repeat photosensitization prior to the second weekly exposure to UV-A. We have examined this hypothesis.

Patients were randomized to receive 8-MOP soaks twice weekly followed by UV-A irradiation on 1 limb or an 8-MOP soak 1 day of the week and placebo at the time of the second treatment, followed by UV-A irradiation on the other limb.

The random allocation list was generated by computer and allocations were concealed in sequentially numbered opaque envelopes containing the words active (twice-weekly soaks) or inactive (once-weekly soak). Randomization was controlled by the research nurse and carried out after patients had given their written consent to participate in the study.

Sixteen patients (9 women and 7 men) with symmetrically localized plaque psoriasis on the arms or legs participated in the study. Patients less than 18 years of age, on photoactive medication, and those who had received systemic treatment for psoriasis or phototherapy, photochemotherapy, or sunbed therapy in the preceding 3 months were excluded from the study. The treatment was limited to the arms or legs. The majority of patients underwent treatment of the arms (13 patients) and in the remaining 3 patients the treatment was applied to the legs.

During the study, topical steroids and antibiotic or antymycotic preparations were allowed for application only to the flexures and scalp; only emollients were permitted elsewhere. Treatment was performed in accordance with the protocol for stepped incremental UV-A therapy established in this unit. If a patient missed a treatment, the next soak administered was the active soak. Treatment was discontinued at clearance or with 4 exposures after achieving minimal residual activity. The data gathered included total number of treatments and total dose of UV-A to clearance or minimal residual activity, time to relapse, and psoriasis severity score in the plaques.

Patients were followed up at 2, 4, and 6 months and at 1 year.

The scaling, erythema, and induration (SEI) score was recorded for selected plaques at each visit. The nurses who administered the soaks, the patients, and the clinician scoring the plaques were blinded to the treatment allocation. In order to determine psoriasis severity on the study limbs over the course of study, we analyzed the area under the curve of SEI scores over time in all patients. There was a seemingly greater reduction in psoriasis severity on the limbs that received two 8-MOP soaks per week, although the difference between the 2 sides did not reach statistical significance in this small study (P = 0.29, Wilcoxon signed rank sum test).

Among the 6 patients who attended follow-up, only one showed a difference in time to relapse on the 2 treated limbs; relapse occurred 2 months later on the ‘active’ (twice-weekly soak) limb.

The aim of this double-blind, intrasubject comparative study was to determine whether omitting one of the 8-MOP baths each week reduced the risk of burning without loss of therapeutic efficacy. A number of difficulties were encountered during the course of the study: patient recruitment was limited by the fact that patients with localized psoriasis are usually managed in the community with topical therapies and, if their psoriasis was generalized, only emollients were permitted; and many patients were lost to follow-up.
Despite prolonged photosensitivity with TMP-bath PUVA and 8-MOP bath PUVA, our impression from this study is that the second soak is probably important, though the size of the study did not allow us to reach a definitive conclusion.

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References