Acta Derm Venereol (Stockh) 1985; 65: 531–535

PUVA Therapy for Palmoplantar Pustulosis

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Ågren-Jonsson S, Tegner E. PUVA therapy for palmoplantar pustulosis. Acta Derm Venereol (Stockh) 1985; 65: 531–535.

Forty patients suffering from pustulosis palmoplantaris were treated with PUVA therapy. Thirty-six patients had palmar lesions which cleared in 31 cases; in 18 cases after an initial course of 3 sessions of treatment per week during an average period of 10 weeks, and in another 13 only after additional, less frequent continuation of the PUVA therapy. The average total UVA dose at clearing of the palmar lesions was 191 and the final UVA dose 7.3 J/cm^2. After 2 years, 9 out of the 31 cases of palmar lesions were still completely healed, and the average duration of remission was ≥15 months. For plantar lesions the results of PUVA therapy, using essentially the same procedure, were less satisfactory: healing being obtained in only 5 out of 34 cases. However, for palmar and plantar lesions alike, most patients have reported long-standing improvement from PUVA therapy. A surprisingly high frequency of nausea was noted as a side-effect. *Key words: Follow-up; Side-effect; Nausea.* (Received May 30, 1985.)

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Efficacy of PUVA therapy for pustulosis palmoplantaris was first reported in 1976 by Menné (1) and Mizuno (2) in 12 and 4 cases, respectively. Subsequent reports (3–6), also on small groups of patients, have all been confirmatory. The present study, performed on a larger group of patients, produces some additional information on particular difficulties encountered in the treatment of plantar lesions, on the duration of the remission, and on the side-effects of PUVA therapy in patients with pustulosis palmoplantaris.

MATERIAL AND METHODS

Patients

From 1978 to 1984, 40 patients with pustulosis palmoplantaris (PPP) were treated with PUVA at the Department of Dermatology, Lund, 26 of whom were females and 14 males, their mean ages being 43 and 42 years, respectively (range 18–69 years). The palms alone were affected in 6 patients, the soles alone in 4, and both sites in 30 patients. Thus, there were 36 patients who had affected hands and 34 who had affected feet. They had their disease since 0.5–22 years (mean 7.6 years). Spontaneous remissions of short duration during the years before starting PUVA therapy had occurred in 12 patients. All had failed to respond satisfactorily to previous kinds of therapy, e.g. topical corticosteroids, anthralin, coal tar and keratolytic emollients.

Treatment

Two hours before irradiation, 8-methoxypsoralen in 10 mg tablets (PUVAMET®, Draco, Lund, Sweden) was ingested with food at a dosage of 0.6 mg per kg body-weight. Waldman PUVA 180 and 200, equipped with Sylvania tubes were used as sources of high-intensity ultraviolet light with a spectrum of 320–390 nm with its peak at 365 nm. Their irradiation output was 5.6–7.5 mW/cm^2. The initial dose of UVA applied was 2.5 J/cm^2. In most cases the dose was then increased by 0.5 J/cm^2 every second treatment. The *initial course* of PUVA therapy consisted of 3 sessions per week, and it was continued either until the lesions cleared or until 2 or 3 months after commencement of PUVA therapy. Then each patient's condition was evaluated. In those patients in whom the lesions had improved satisfactorily, PUVA therapy was often terminated. In other cases, where improvement was just noticeable or absent, the patients were given a *continuation course* of PUVA treatment. In most cases the treatment was given once a week without further increase in UVA dose. All patients used keratolytic emollients as a form of local treatment. In addition, topical steroids were used in combination with PUVA therapy by 13 of the 40 patients, when healing appeared to be slow.

Table I. *Results of PUVA therapy for palmoplantar pustulosis*

Treatment	Total	Patients			Average no. of sessions	Average final UVA dose (J/cm²)	Average total UVA dose (J/cm²)
		Cleared	Improved	Unchanged			
Palms							
Initial course	21	18	3	0	25	7.2	126
Initial + continuation course	15	13	2	0	37	8.1	271
Sums/means	36	31	5	0	30	7.2	187
Soles							
Initial course	22	4	14	4	27	9.4	154
Initial + continuation course	12	1	10	1	48	14.0	364
Sums/means	34	5	24	5	34	11.0	228

Laboratory studies

Laboratory tests including erythrocyte sedimentation rate, haemoglobin concentration, red and white blood cell count, platelet count, tests for antinuclear antibodies (ANA), assays for blood glucose, and liver and kidney function, were performed before the start of PUVA therapy, and then at 1 and 3 months after commencement of the therapy and subsequently at 3-month intervals from those patients undergoing continuation treatment.

RESULTS

Immediate effects of PUVA therapy

After the initial course of PUVA therapy the hand lesions of the 36 patients had healed in 18 cases, and in another 3 the lesions had improved satisfactorily, i.e. to the extent that further treatment was considered superfluous. In the remaining 15 patients, continuation therapy was carried out once (or in a few cases twice) a week, and after an average of 9 treatments the hand lesions were found to be completely healed in 13 and satisfactorily improved in 2 patients. Overall, 31 out of 36 patients with palmar lesions subjected to PUVA therapy enjoyed complete clearing, and the remaining 5 showed satisfactory improvement after PUVA therapy. A summary of the results is given in Table I.

The initial course of PUVA therapy for foot lesions—largely administered in the same way as for hand lesions—resulted in clearing in only 4 out of the 34 patients, satisfactory improvement in 14 patients, and in another 4 no change at all. In 12 patients, in whom only a limited effect from the initial course of therapy had been noted and continuation treatment had been given, complete healing was achieved in only 1 case, satisfactory improvement in 10 cases, and absence of therapeutic effect finally had to be registered in 1 case. Thus, in 34 patients with plantar lesions of pustulosis palmoplantaris, complete clearing was registered in 5, satisfactory improvement in 24 and absence of therapeutic effect in 5 cases.

Compilation of treatment parameters

In Table I there are also given the average number of PUVA treatments, the average final and the average total UVA doses administered to palmar and plantar lesions during this study. It shows the great difference in average total UVA doses between initial courses alone and those initial ones combined with continuation courses, as for hand lesions 126 and 271 J/cm², respectively. Although not listed in the table, the overall average figures for *cleared* cases of palmar lesions are 7.3 J/cm² and 191 J/cm² as final and total UVA doses.

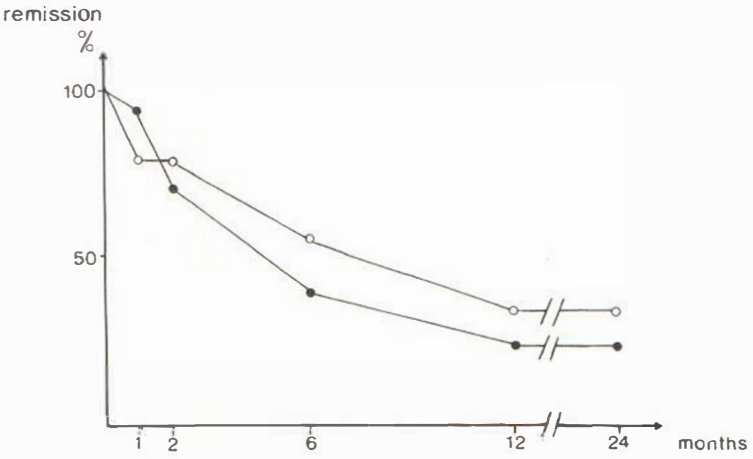

Fig. 1. Percentage remission from PUVA therapy for palmar lesions of palmoplantar pustulosis, plotted as a function of time, as noted in cases (n=18) healed after the initial course of PUVA therapy (○—○) and in cases (n=13) healed only after an additional course of continuation treatment (●—●).

In addition, Table I shows that in this study the PUVA therapy given for foot lesions was rather more extensive than that given for hand lesions.

Duration of remission and improvement

In Fig. 1 remission of palm lesions is represented graphically as a function of time, for the group of patients whose lesions cleared after the initial course of PUVA therapy and for those whose lesions cleared only after additional continuation therapy. Among 18 patients who received only the initial course of treatment, recurrence appeared within a year in 12; in the 13 patients who also received continuation therapy, recurrence appeared in 10, i.e. approximately 67 and 77%, respectively. However, then their lesions were usually of limited activity, and they were able to continue working etc. The lesions did not deteriorate to their previous condition, except in a few cases. In addition, it may be seen from Fig. 1 that the remaining cleared cases, approximately 33 and 23%, also enjoyed continued remission during at least an additional year. At a follow-up 0.5–5 years after the termination of PUVA therapy (in August of 1984), the average duration of remission in these two groups of cases of treated palmar lesions was ≥15 and ≥14 months, respectively. One may also note that 29 of all the 40 patients with palmar and/or plantar lesions were either still in remission or still significantly improved compared with their condition before the commencement of PUVA therapy. However, 10 patients reported that they had had only limited and/or short-standing therapeutic effects from PUVA therapy, particularly concerning plantar lesions.

Side-effects

Nausea of varying intensity was reported by 24 of the 40 patients. Other well-known side-effects of PUVA therapy, such as dizziness or headache, were reported by a few of the same patients. However, there was no report on local side-effects from the treatment such as erythema or phototoxic blisters except that 1 patient developed subungual petechiae. The results of laboratory analyses performed were essentially normal for all patients.

DISCUSSION

After PUVA therapy was applied in 36 cases of palmar and 34 cases of plantar lesions of palmoplantar pustulosis—concurrent in 30 patients—31 of the former and only 5 of the

latter cleared. Thus the results of treatment were much better in hand lesions than in foot lesions of PPP, in spite of the fact that the latter were treated somewhat more extensively. This difference in results may be due to the fact that the eruptions of PPP are often more pronounced on the soles of the feet than on the palms and/or to different properties of the skin at these two sites, e.g. the thickness of the epidermis. Only one of the reports in the literature on peroral PUVA therapy for PPP makes a clear distinction between palmar and plantar lesions (3). In fact, the authors of that study report a higher average UVA dose at clearing of plantar lesions compared with that of palmar lesions, and both levels are higher than those in the present study. On the other hand, it is also notable that studies generally comparable to this one report much lower total UVA doses than ours. These differences may be interrelated and primarily be due to differences in rates of increment of UVA doses.

Considering the results of previous investigations (1, 3–5) and of the present study, one finds that the extent and severity of side-effects of PUVA therapy for PPP are quite limited. However, it is not obvious why the patients in this study reported nausea to a significantly greater extent than whole-body-irradiated patients with psoriasis (7) as well as simultaneously studied patients with eczematous dermatitis receiving PUVA therapy (8). In 1976, Menné in his initial and comprehensive report pointed out nausea as a frequent side-effect of PUVA therapy for PPP, and stated that it may be much reduced by a reduction in the dose of 8-methoxypsoralen by only 10 mg (1).

Until now, no follow-up study of PUVA-treated PPP patients has been published. In this report these aspects are treated separately for hand and foot lesions and also with special reference to the extent of PUVA therapy in hand lesions, particularly whether a course of continuation treatments was given or not. As is evident from Fig. 1, there is no significant difference in the development of recurrence as a function of time between the group of patients with palmar lesions of PPP, whose lesions healed after the initial course, and those whose lesions healed only after an additional continuation course of PUVA treatment. In fact, the average duration of remission in cases of cleared palmar lesions—after an observation period of 0.5–5 years—was 15 months. A similar situation apparently applies to deterioration after attaining satisfactory improvement of plantar lesions, whether already from the initial course of PUVA therapy or only after additional continuation treatment.

In conclusion, this study further confirms the efficacy of PUVA therapy for PPP and, in addition, yields information on persistence of satisfactory results of treatment in the majority of patients with PPP, even when complete clearing is not attained or does not remain permanent. Further considerations and analyses of efficacy are required in order to design optimized treatment schedules for efficient and individualized therapy for plantar and palmar lesions alike, also aiming at a reduction in the frequency of nausea that appears as the dominating side-effect at present.

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