A COMPARATIVE EVALUATION OF MODIFIED GOECKERMAN REGIMEN AND ORAL PSORALENS PLUS PHOTOTHERAPY IN PSORIASIS

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Summary

Employing psoralen plus solar irradiation therapy in 20 patients with plaque psoriasis, improvement was noted in 55% of the patients. The overall improvement rate was however higher (95%) with coal tar plus solar irradiation treatment in the other group of 20 patients. In both groups, improvement in 20% of patients each could be discounted on account of the natural course of the disease. One patient in the psoralen group went into erythroderma and another could not tolerate the drug because of marked nausea, headache and giddiness. Perhaps, the UVA in the sunlight is not sufficient and a high intensity UVA source is required to enhance the therapeutic efficacy of psoralen treatment. For want of information on toxic effects of such a therapy and until the time such a source is available tar ointment or baths in conjunction with sunlight seems a good alternative.

The fundamental defect and the sequence of pathologic events in psoriasis remains unknown. Accelerated epidermopiesis continues to dominate therapeutic thinking and its inhibtion appears to be the major effect of most accepted modes of treatment. For decades, topical dithranol[1] and coal tar in the Goeckerman regimen[2] in combination with ultraviolet light have been traditionally employed with variable results. A therapeutic holiday in the sunshine has often proved helpful[3] and in many patients ultraviolet light alone may be effective. Some workers[4] have long employed lamps emitting long and short wave ultraviolet radiations and the others[5] have combined topical methoxsalen with black light for treatment of psoriasis. The success was attributed to the property of psoralen & black light to inhibit epidermal DNA synthesis[6]. Subsequently, Parrish et al[7] employed oral methoxsalen plus long wave ultraviolet light (UVA) from a newly developed high intensity lamp with very impressive results.

In a country like India where presumably plenty of UVA is available reaching the skin surface and the solar source is not very unpredictable, it appeared worthwhile to try psoralens plus solar irradiation treatment as an economical substitute for an expensive high intensity UVA artificial light source.

Patients & Methods:

Forty consecutive patients with plaque psoriasis attending the psoriasis clinic at

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the Postgraduate Institute of Medical Education & Research, Hospital, Chandigarh were taken for the study. Patients were divided into 2 groups of 20 each, matched according to their age, sex ratio, duration of the disease and the extent of psoriasis (Table 1). Patients in Group A were given 40 mg psoralen orally

NUMBER OF PATIENTS	7d		14d		1m		2m		3m		4m		6m	
	PSOR	TAR	PSOR	TAR	PSOR	TAR	PSOR	TAR	PSOR	TAR	PSOR	TAR	PSOR	TAR
IMPROVED	1	4	7	10	10	16	10	19	11	19	11	18	10	12
COMPLETE	0	0	0	0	0	2	2	4	3	8	6	8	7	7
PARTIAL	1	4	7	10	10	14	8	15	8	11	5	10	3	5
NO EFFECT	18	15	11	9	7	4	6	1	5	0	2	0	1	0
WORSENED	1	1	2	1	2	0	3	0	3	1	–	1	1	2
LOST-FOR-F.U.	0	0	0	0	1	0	1	0	1	0	7	1	0	6
RESPONSE AT 3 MONTHS	COMPLETE CLEARING WITH PSOR + SUNLIGHT – 3 OF 20 PATIENTS WITH TAR + SUNLIGHT – 8 OF 20 PATIENTS										(P>0.05)			

Table 2 : Comparative results of psoralen + Sunlight and tar + sunlight therapy in psoriasis.

TABLE 1
Matched groups A & B of 40 psoriasis patients

	Group A	Group B
Psoriasis patients	20	20
Sex ratio	15 M : 5 F	15 M : 5 F
Age Group (Years)	20–60	15–60
Duration of psoriasis (Years)	1–25	1–20
Percentage affected	10–80	10–70
Treatment	40 mg Psoralen Orally + Sun exposure	Tar Ointment topically + sun exposure

every day in the morning around 10 a.m. followed 2 hours later by 30-60 minutes sun exposure. The exposure initially was for 30 minutes and was gradually increased over 2 weeks to 60 minutes. Each patient was instructed to take the tablets after a light meal and wear goggles while exposing to the sun. The total duration of the treatment planned in each case was 3 months. The other 20 patients in group B received daily topical tar ointment containing 2% salicylic acid, 25% Liq. picis carb. in petrolatum at bed time followed by sun exposure for 30-60 minutes between 12 noon and 2 p.m. Patients in each group were assessed at weekly intervals for 3 months and fortnightly or monthly henceforth. Clinical improvements or deteriorations and any side effects were recorded. A special record in each patient of the seasonal variation in the past clinical course and the time of initiation of therapy was made so as to evaluate the effect of any natural remission posttreatment.

Results (Table 2, 3, 4)

At one month posttreatment, 10 patients (50%) showed improvement in the Psoralen group and 16 patients (80%) in the Tar group. At 3 months, 11 patients in psoralen group and 19 patients in tar group showed improvement. In both groups, improvement in 4 patients each could be discounted on the basis of the natural course of remission of the disease. Complete clearance was recorded in only 3 patients (15%) in psoralen group and 8 patients (40%) in tar group at 3 months. The difference was however not significant statistically ($p > 0.05$). The treatment was stopped at 3 months but the effect of each treatment was maintained for further 2-3 months. Five patients in psoralen group showed no effect throughout the duration of the treatment and were later lost for follow up.

No side effects were noticed in the tar group. Of the psoralen group, 6 patients complained of intense itching initially. This was not accompanied by erythema but exfoliation was somewhat enhanced during the first week of therapy. In other 2 patients psoralen therapy was abandoned, in one because

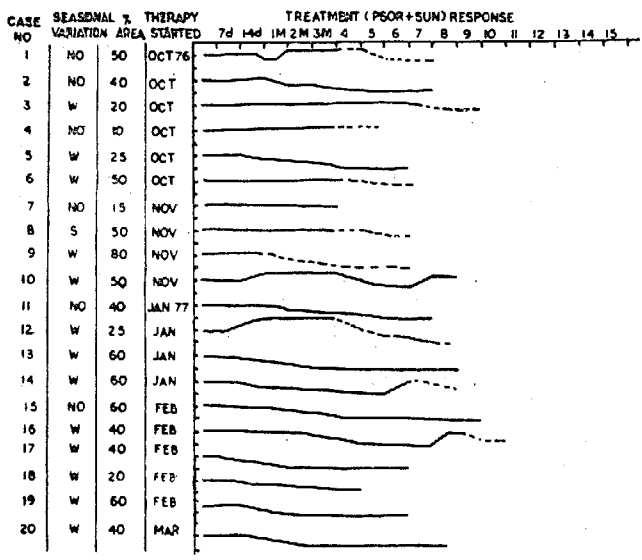

Table 3 : Post-treatment follow up tracings of Psoralen + sunlight treatment results on 20 patients with psoriasis

of severe nausea, headache and giddiness and in the other because of the development of erythroderma during the second week of therapy.

Discussion :

Although psoralen plus sunlight therapy had a beneficial effect in more than 50% of the patients, the overall improvement rate was better with tar plus sunlight treatment in this study. Perhaps, the UVA energy from solar source is not sufficient and a high intensity UVA source is required to enhance the therapeutic efficacy of psoralens in psoriasis. As to the question of which psoralen compound be employed in such a treatment, it has been mentioned by El-Mofty[8] that psoralen, the parent compound possesses the highest photosensitizing property and any alteration of molecule with group which alter the absorption and fluorescent spectra decreases its biological response. Psoralen is derived from Psoralea corylifolia and 8 methoxypsoralen (8-MOP) or methoxsalen from Ammi majus. Both psoralen and 8-MOP produce more erythema than pigmentation as compared to trimethylpsoralen which seems to be more effective in the treatment of vitiligo. Becker[9] in 1960 stated that psoralens will be effective in any disease responding to sunlight. El-Mofty[8], however, observed that the course of psoriasis remained unaltered on administration of 8-MOP to 12 patients. This further warranted the search for a high intensity UVA source and planned studies were initiated at Boston[7] band at Vienna by Wolff et al[10]. However, the effect of very high energy UVA alone on the psoriatic plaques is yet to be evaluated.

Both topical 8-MOP[11-14] as well as oral 8-MOP[7,15] with high energy UVA have been employed with highly encouraging results. The topical therapy has its limitations in producing easy blistering

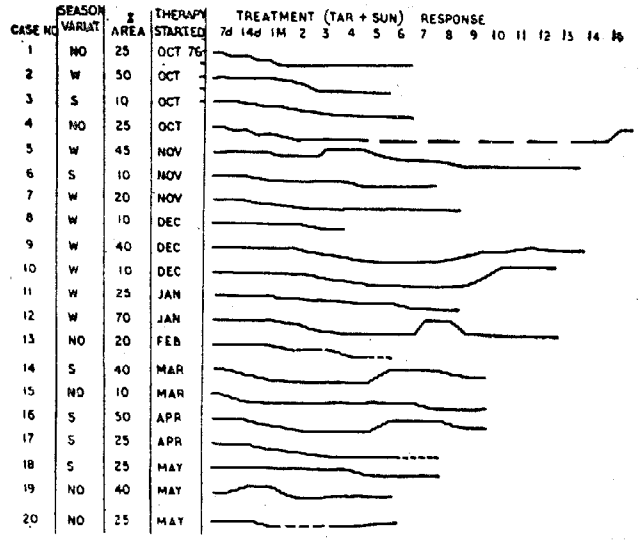

Table 4 : Post-treatment follow up tracing of tar + sunlight treatment results of 20 patients on psoriasis

and irregular pigmentation but these can be controlled with better quantification of phototoxic reaction. To avoid systemic toxicity of psoralens, topical diluted aqueous psoralen baths prior to UVA exposure can be purposeful. With systemic treatment with PUVA, the combined reports of Boston Vienna groups are very impressive. Complete clearing could be achieved in average 34.4±20 days and 84% of psoriasis patients could be termed 'cured'. It is to be seen that how long they remain free of psoriasis for it is known that after several weeks or months of treatment the patients become resistant to ultraviolet light because of alteration in the stratum corneum and then the exposure times need to be increased. Under the circumstances, the alleged toxic effects of such a therapy viz cataracts[16,17,18], development of skin carcinomas[19] and chromosomal damage[20] become concerning.

Psoralens and ultraviolet light has been used for decade in India for the treatment of vitiligo and there has been no reports of toxicity. The Indian people, perhaps, tolerate ultraviolet light and psoralens better than the whites and the dose and the exposure time of PUVA required to produce similar results in Indians may be more. The solar source for UVA is not sufficient and a high intensity UVA source is warraented to evaluate the role of PUVA in Indian psoriatics. Until the time such a source is readily available within economic means and we learn more of the yet unnoticeable side effect of psoralen and/or UVA therapy over prolonged periods, coal tar in conjunction with sunlight seems to be a good alternative.

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FALSE

High titer of hemagglutinating serum antibody to ENA is a characteristic but not diagnostic abnormality of MCTD. These antibodies to ENA also occur in about half of the patients with SLE and have been reported in lower frequency in other rheumatic disease.

To analyse the specificity of antibodies to ENA occurring in MCTD and SLE, enzymatic digestion studies are possible. The typical serological findings in MCTD are a high titer of hemagglutinating antibody to rihonuclease (RNase) sensitive ENA and precipitating antibody to nuclear ribonucleoprotein (RNP) and not to the ENA antigen resistant to RNase which is identical with Sm antigen.

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