EVALUATION OF 8 - METHOXYPSORALEN and SOLAR ULTRAVIOLET LIGHT (PUVASOL) IN PSORIASIS

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Summary

Thirty-three patients suffering from psoriasis took part in PUVASOL treatment study. All the patients were exposed to sunrays 4 times a week between 11-30 a. m. and 1-30 p. m , two hours after ingesting 8-MOP. The initial exposure was for 15 minutes. Exposure time was gradually increased upto a maximum of 90 minutes. 17 out of 27 patients had grade 3–4 improvement, 8 patients had grade 1–2 improvevement, while 2 patients did not show any improvement. The results obtained were comparble to those obtained with oral 8–MOP and sophisticated high intensity artificial UVA.

A new era in the treatment of psoriasis was ushered in when it was controlled successfully with systemic administration of 8-methoxypsoralen (8-MOP) followed by long wave ultraviolet light irradiation[1,2,3]. In the western countries very sophisticated and costly artificial UV light chambers are available ready-made and currently these chambers are used in these countries. Satisfactory results were also obtained by using solar ultraviolet irradiation and systemic 8-MOP[4,5]. In tropical countries like ours, sun shines brightly and emits significant amount of long wave UV rays[6]. Moreover, solar UV rays are free of charge and patients can be treated at their home thus saving their time and money. Several workers have used PUVASOL therapy in our country with moderately successful results[7,8,9]. The present study was carried out to evaluate response to *PUVASOL* treatment in psoriasis.

Material and Method

33 patients suffering from psoriasis having more than 25% skin involvement were included in this study. 32 were males and one was female. Initially females were not included due to lack of privacy. Subsequently towards the end of study, a solarium where patients could be exposed in privacy was constructed and one female was studied. The duration of psoriasis ranged from 1 year to 35 years with mean of 9.2 years. The age of patients ranged from 14 to 62 years with mean of 38.4 years.

Six patients dropped out after few exposures due to lack of time for exposures. Out of 27 patients who completed the study, 17 were given

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flat dose of 60 mg. of 8-MOP orally and 10 patients were given 8-MOP in dosage of 0.6 mg/kg. body weight after some food. All the patients took solar irradiation in lying down position, two hours after ingestion of 8-MOP. Patients were exposed bare bodied except for under-garments covering private parts. Patients were asked to close their eyes during exposures. The interval between 1st and 2nd exposures was 72 hours to avoid a sunburn reaction. Subsequently patients were exposed 4 times a week. The exposure time was between 11-30 a. m. and 1.30 p. m. as during this time, solar irradiation contains maximum amount of long wave ultraviolet rays[6]. The initial exposure time was 15 minutes. At every subsequent exposure, the time was increased by 5 minutes upto a maximum of 90 minutes. Patients having lesions on dorsal as well as ventral surfaces of the body were asked to turn after half the exposure time. Patients not showing any improvement after 30 exposures were taken as treatment failures.

In all patients detailed history was taken and those on previous medications were taken up in this study four weeks after discontinuation of previous therapy.

In all patients routine haematological and urine examinations and biochemical tests such as fasting and post prandial blood sugar and liver function tests were carried out before and after photochemotherapy. Clinical photographs were taken before and after therapy in every patient. Seventeen patients were hospitalized and rest were treated on outdoor basis. Every patient was thoroughly examined once a week. Reduction in scaling and flattening of lesions was considered as favourable responses.

Results

The response to therapy was judged as per Table No 1.

TABLE No. 1

Response to Therapy		
Grade	Criteria	% Improvement Compared to original status of disease
— 1	Psoriasis worse	0
0	No change	0
1	Minimal improvement — slightly less scaling and/ or erythema	5–20
2	Definite improvement — partial flattening of plaques, less scaling and less erythema.	20–50
3	Marked improvement — complete flattening of all plaques but borders of plaques still palpable.	50–95
4	Complete clearing — complete flattening of plaques including borders; plaques may be outlined by pigmentation.	>95

The results obtained are summarized in Table No. 2.

TABLE No. 2

Grade of Improvement	No. of Patients	%
—1	–	–
0	2	7.2
1	3	11.1
2	5	18.2
3	6	22.2
4	11	40.7

From this table, it is evident that *PUVASOL* therapy is useful in the treatment of psoriasis. In 62.9% of patients Grade 3-4 respones was obtained. These results are comparable to the results obtained with high intensity PUVA therapy in our country[8]. Patients put on flat dose of 60 mg. of 8-MOP required 34 exposures for clearance whereas those put on 0.6 mg.

of 8-MOP/kg. body weight required 52 exposures for clearance.

Some patients had nausea and giddiness after ingesting 8-MOP for initial few days but gradually it disappeared and in no patient the treatment was discontinued because of side effects.

Discussion

In our sacred book Athervaveda, written 1400 years B. C., use of extracts of Bavachee in the management of vitiligo was mentioned. In modern allopathic medicine, Psoralens were first introduced by El Mofty from Egypt in 1947[10]. Since then lot of research work has been carried out on these and observation of their photodynamic activity has paved the way to a series of experiments to determine their role not only in vitiligo but also in various other dermatological conditions including psoriasis.

When administration of photosensitizing agent is followed by exposure to long wave ultraviolet light in psoriatic patients, an interaction between light and drug takes place which inhibits DNA synthesis in rapidly proliferating epidermal cells in psoriatic patches[11]. Among all the oral psoralens, 8-MOP is most active and hence is universally preferred to other psoralen derivatives, for PUVA therapy[12].

In western countries sophisticated and costly UVA chambers are available for irradiation. These chambers emit high intensity UVA which can be measured by phototherapy radiometers. Patients can be exposed in complete privacy at any time during the day in these chambers. However such costly equipment is not available even in big hospitals of large cities of our country. Hence we will have to make optimum use of sunlight which has considerable amount of UVA.

Talwalkar and Gadgil[6] from Bombay have shown that maximum intensity of ultraviolet light from solar emission is at noon and during months of March to July. Sunlight also contains UVB rays which may have therapeutic values.

In this series we got very satisfactory therapeutic response in 62.9% of patients. All the patients had accepted the therapy well and no patient was dropped out because of side-effects. The results are comparable with those obtained by Gadgil and Talwalkar[3] from Bombay by using artificial high intensity UV light system. However total number of exposures required were more.

PUVA is very promising therapy. Long-term follow-up will have to be done to judge its efficacy in maintaining remission and to study the possible long-term side-effects such as carcinogenicity.

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FALSE

The affinity of Langerhans' cells to gold was first demonstrated by Langerhans himself. Other metal ions like mercury, nickel, cobalt and chromium can also be used for Langerhans' cell labeling. Further, although gold impregnation appears to be Langerhans' cell - specific in the epidermis when correctly performed, a variety of cells are stained by the same technique in the dermis.

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