A COMPARISON OF SYSTEMIC PHOTOCHEMOTHERAPY WITH 8- METHOXYPSORALEN (8-MOP) AND WITH TRIMETHYLPSORALEN (TMP) IN VITILIGO

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Oral 8-MOP and TMP were compared in the PUVA therapy for vitiligo. Group A (25 cases) was initiated on 0.3 mg/kg of 8-MOP with 1/2 Joule/cm^2 of UVA and weekly increments of 1/2 Joule/cm^2 and Group B was started on 0.6 mg/kg of TMP with 1 Joule/cm^2 of UVA and weekly increments of 1 Joule/cm^2. Therapy was given thrice a week. Repigmentation was evaluated by using a 0-6 scale. At the end of 60 sittings, an acceptable cosmetic response was seen over the face, neck and upper extremities in both groups, while trunk and lower extremities showed lesser response. 8-MOP gave earlier response, needing a lower cumulative UVA dose i.e. 75 J/cm^2 as compared to TMP i.e. 106 J/cm^2. Phototoxicity was seen more often with 8-MOP. In conclusion, in Indians, 8-MOP is the drug of choice in PUVA therapy of vitiligo provided precautions against phototoxicity are adequate.

Key words : PUVA, Vitiligo, Psoralen, Phototherapy

Introduction

Vitiligo is usually associated with severe social stigma, ofter leading to considerable psychological morbidity. Psoralens do offer hope to a large percentage of patients as they are known to produce cosmetically acceptable repigmentation. However, very few studies have compared the relative effectiveness of various psoralens. [1] We compared the efficacy and safety of 8-MOP and TMP in the therapy of vitiligo.

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Materials and Methods

This study comprised 45 patients with widespread vitiligo. Pregnant and nursing women, acromucosal vitiligo and children below 10 years of age were excluded. Women patients were advised contraception during the therapy. Before starting the therapy, detailed ophthalmological and skin examinations for premalignant and malignant lesions were performed. Baseline biochemical and hematological investigations (complete blood count, liver function tests, renal function tests, blood sugar were undertaken). Thyroid function tests were done whenever patient showed clinical evidence of thyroid dis-

ease. Patients were alternately assigned to two groups. The following treatment schedule of Harvard clinical trial was used.[2]

Group A (8-MOP therapy): 25 patients were started on 0.3 mg/kg of 8-MOP and after 2 hours exposed to UVA light (320-400 nm),½ Joule/cm^2, with increments of ½ Joule /cm^2 every week.

Group B (TMP therapy): 20 patients were started on 0.6 mg/kg of TMP with UVA exposure after 2 hours with 1 Joule/cm^2 with increments of 1 Joule/cm^2 every week.

Psoralen was given with food and exposure to UVA light was done 2 hours later in a whole body PUVA chamber. The indigenously manufactured hexagonal PUVA chamber consisted of six panels, each panel containing six tubes of 6 feet length. (Philips TL 100 watts / 09 UV) with aluminium reflecting surface at the back. The patient was made to stand in the center of the chamber 30 cm.away from the tube, without any clothing but after shielding of the eyes with protective glasses (Beta-2 tauric) and recommended to further shield the eyes during day time. The UVA dose to be delivered was measured with the help of a photometer (Waldmann UV meter Typ 585100). Increments of UVA exposure were given till patients developed perceptible erythema or perifollicular repigmentation. Therapy was given thrice weekly. The dose of 8-MOP and TMP was increased to 0.6 mg/kg and 0.9mg/kg respectively if no or slow response was seen after 25 sittings.

For evaluation purpose a representative totally depigmented lesion was chosen, one each from face, upper limb, trunk and lower limb. This same lesion was graded every 10 sittings as per the following scale.

0- No repigmentation

1- Diffuse lightening of depigmented lesion (tan colour)

2- Perifollicular repigmentation

3- Spreading follicular pigmentation

4- Coalescing of pigmentation with areas of depigmentation in between

5- Confluent repigmentation with few remnant islands of depigmentation

6- Complete repigmentation

Grades 6,5 and 4 were considered as excellent, good and moderate responses respectively. Grading of 3 and less than 3 was considered as poor response. Grade 4 and above is cosmetically acceptable to most patients.

A final assessment was made at the end of 60 sittings. Wilcoxon's rank sum test for comparison between changes in grading of 2 groups (Z test) was used. During this study side effects were noted at each follow up.

Results

Our 45 patients (15 M, 30 F) were within age range of 15 to 80 years. In the majority, duration of vitiligo varied from 1-10 years. A positive family history was obtained in 14 (31.3%) patients with diabetes mellitus and thyrotoxicosis in 2 patients each.

Response of the two groups at the end of 60 sittings is shown in Table I. In both groups, vitiligo involving the face and upper extremities (Fg 1.2) showed acceptable cosmetic response and lesser response was seen on the

trunk and lower extremities. Although response of both groups was comparable on face, at all other sites 8-MOP group showed higher grade of repigmentation and also appeared early. Five patients on 8-MOP and two patients on TMP showed partial repigmentaion over palms and soles. Three patients on 8-MOP showed marginal pigmentation on finger tips and genitalia. However the difference between the two groups at 30 and 60 sittings was not statistically significant (Z test).

Side effects were more with 8-MOP as compared to TMP (Table II). The commonest side effects observed were phototoxicity and hyperpigmentation of normal skin. The cumulative UVA exposure was comparatively lower in patients treated with 8-MOP (75 J/cm^2).

Table I Percentage of patients showing response of the two groups at the end of 60 sittings.

Site	Group	Excellent	Good	Moderate	Poor
Face	8-MOP	57	31	6	6
	TMP	53	18	20	9
Upper Extremity	8-MOP	26	24	47	3
	TMP	10	25	45	20
Trunk	8-MOP	12	40	28	20
	TMP	5	37	11	47
Lower Extremity	8-MOP	12	28	36	24
	TMP	-	22	34	44

Table II. Side effects of PUVA

Side effects	8-MOP n=25	TMP n=20
phototoxicity	32%	20%
nausea	16%	15%
hyperpigmentation of normal skin	40%	15%
thickening of skin	24%	15%
acneform eruption	24%	15%
wrinkling of skin	16%	10%
hypertrichosis	16%	10%
pins and needles	20%	5%
PLE-like eruption	4%	5%
nail pigmentation	4%	0
photonycholysis	4%	0

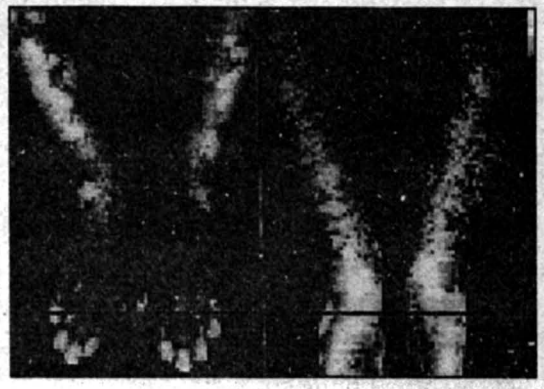

Fig.1. Pre and post treatment (at 60 sittings) photograph of upper extremities.

Fig.2. Pre and post treatment (at 60 sittings) photograph of posterior trunk.

Discussion

A limited number of comparative studies have been done to establish the relative effectiveness of the various psoralens. Sehgal compared very low doses (10mg) of TMP, 8-MOP and psoralen in a total of 85 patients. He found better results at 6 months with psoralen and TMP but a greater percentage (13%) repigmented fully with 8-MOP[1]. In a 2 year comparative study in 365 indian patients, Pathak found over 50% of patients repigmented over 50% of their vitiligo[3]. The best overall response was seen with 20mg 8-MOP (66.7 % face and 47.2 % overall good to excellent reponse) than

40 mg TMP (47.8% facial but only 37.6% overall).

In our study, we observed that: 1) 8-MOP gave an early response. However probably because of small number of patients, this was not statistically significant. 2) The average cumulative joules for 8-MOP was less (75 J) as compared with TMP (106 J), which is important as vitiligo patients require long term therapy. 3) Side effects like phototoxicity were more with 8-MOP. This can be attributed to inadvertent exposure to sunlight on exposed parts. 4) 8-MOP was cost effective. The approximate cost of TMP and 8- MOP for 60 sittings was 324 and 108 rupees respectively.

In conclusion, it is preferable to use 8-MOP for vitiligo photochemotherapy provided precautions against phototoxicity are adequate. The patient should be tendered clear instructions regarding regular follow up and it ought to be emphasized that a continuous and consistent treatment for several months is required to produce a desirable, optimum and commendable outcome.

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