

Efficacy of Combination of UVB and Acitretin Versus UVB Alone in Treatment Of Moderate To Severe Plaque Psoriasis

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ABSTRACT

Aim: To evaluate the efficacy of combination of acitretin and UVB versus UVB alone in treatment of moderate to severe plaque psoriasis.

Methods: This comparative study was conducted at Department of Dermatology & Venereology, The First Affiliated Hospital of Kunming Medical University, Kunming, Yunnan, 650032 from January 2016 to June 2016. Total 80 patients suffering from plaque psoriasis having age from 15 years to 50 years either male or female were selected for this study.

Results: Total 80 patients with moderate to severe plaque psoriasis were included in this study. Mean age of the patients of Group A was 32.82 ± 11.084 years and mean age of the patients of Group B was 33.00 ± 11.200 years. Efficacy of the treatment was noted in 33 (82.5%) patients of Group A and 22 (55%) patients of Group B. Significant ($P = 0.015$) difference was found in efficacy of both groups. No association of efficacy of drugs was found with gender and age.

Conclusion: In present study two groups of patients with plaque psoriasis were treated with combination of UVB and Acitretin and UVB alone. Results of this study showed a significant difference between the efficacy of two treatment groups. But insignificant association of efficacy was seen with gender and age.

Key words: Psoriasis, UVB phototherapy, efficacy, drug administration, biologic preparations, treatment

INTRODUCTION

Psoriasis is a chronic disorder characterized by erythematous scaly papules and plaques commonly involve scalp, elbows, knees, hands, feet, trunk and nails. Its prevalence ranges from 0.1% to 3% in various populations¹. Both genetic and environmental factors such as trauma, infection and medications are important in disease causation. Males and females are equally affected². Various antipsoriatic treatments are available such as topical steroid, topical vitamin D analogues, phototherapy such as UVB, PUVA, systemic treatments such as methotrexate, acitretin, tacrolimus, azathioprine, cyclosporine³, sulfasalazine, pentoxifylline⁴, mycophenolate, mofetil⁵, anticytokines^{6,7}, biological agents such as alefacept, etanercept, infliximab.³⁻⁵ Administration of UVB phototherapy is effective for the treatment of psoriasis. Its mechanism of action involves selective depletion of T cells mainly in epidermis in the lesional skin⁶.

Acitretin an oral retinoid, is used in treatment of moderate to severe psoriasis. Combination of acitretin with UVB is a valuable clinical strategy. It

enhances efficacy, decreases no of treatments and cumulative dose of UVB required for clearance of psoriasis.⁷It causes 20% reduction in cumulative dose of UVB.⁸Thereby reducing long term hazards of UV radiations such as photo ageing and carcinogenic potential. By doing this study we may able to opt for the better treatment modality in terms of efficacy.

MATERIAL AND METHODS

This comparative study was conducted at Department of Dermatology & Venereology, The First Affiliated Hospital of Kunming Medical University, Kunming, Yunnan, 650032, China from January 2016 to June 2016. Total 80 patients suffering from plaque psoriasis having age from 15 years to 50 years either male or female selected for this study.

Pregnant and lactating women and females of child bearing potential not using adequate contraceptive method, patients who have history of skin cancer, solar keratosis, patients with hyperlipoproteinemia, severe cardiac and neurological disease, patients receiving other systemic therapy for psoriasis such as acitretin or methotrexate and who have received any form of UV therapy in preceding 6 months were excluded from the study.

Disease was diagnosed on the basis of clinical features as described in the operational definition and PASI was used to monitor the response. Patients randomly allocated into two equal groups by lottery

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method. Group A having 40 patients was given acitretin 0.5 mg /kg/day with UVB three times weekly with whole body exposure unit for 8 weeks. Group B having 40 patients was given UVB three times weekly with whole body exposure unit for 8 weeks. Final assessment was made at the end of 8 weeks of initiation of therapy in dermatology outpatient department. Efficacy as defined in operational definition was noted on proforma in both groups at the end of 8 weeks.

Operational definition:

1. Psoriasis is defined as red, scaly, sharply demarcated indurated plaques with minimum PASI score of 10.
2. Efficacy: PASI score was used to monitor the response. 50% or above reduction in PASI from baseline at the end of 8 weeks of initiation of therapy was taken as effective response and others was labeled as non-responders to therapy.

PASI Score: PASI (Psoriasis area and severity index) combines the assessment of severity of lesions and the area affected into a single score in range 0 (no disease) to 72(maximal disease).Body in divided into four sections.

Head 10% of persons skin (0.1), Arms 20% of person's skin(0.2), Trunk 30% of persons skin(0.3), Legs 40% of person's skin(0.4), For each section percentage of area involved (area score) is estimated and graded from 0 to 6.

0=none, 1=1-9%of involved area, 2=10-29% of involved area, 3=30-49%of involved area, 4=50-69%of involved area, 5=70-89%of involved area, 6=690-100%of involved area

within each area severity is estimated by 3 clinical signs Erythema(E), Thickness(T) and scaling(s) of plaques. Severity parameters are measured on a scale of 0 to 4.

0-none, 1 -slight, 2-moderate, 3-severe, 4-very severe

The sum of three severity parameters is then calculated for each section, multiplied by area score for that area and multiplied by weight of respective section (0.1 for head,0.2 for arms,0.3 for trunk,0.4 for legs)

Head $C1=(E+T+S) \times \text{Area score} \times 0.1$, Arms $C2=(E+T+S) \times \text{Area score} \times 0.2$, Trunk $C3=(E+T+S) \times \text{Area score} \times 0.3$, Legs $C4=(E+T+S) \times \text{Area score} \times 0.4$
 $PASI=C1+C2+C3+C4$

Data Analysis: Collected data was analyzed by using SPSS version 20. Mean and SD was calculated for age and weight. Frequencies and percentages were calculated for gender and efficacy of drug in both groups. Chi square test was applied to compare the efficacy between the both groups. between both groups. P value was considered significant if equal or less than 0.05. Stratification of age, weight and

gender was done to control effect modifiers and Chi square test was applied to see effect on these outcome variables. p value was considered significant if equal or less than 0.05.

RESULTS

Total 80 patients with moderate to severe plaque psoriasis were included in this study. Patients were divided into two groups, Group A and Group B. Group A was treated with combination of UVB and acitretine and Group B was treated with UVB alone. Mean age of the patients of Group A was 32.82 ± 11.084 and mean age of the patients of Group B was 33.00 ± 11.200 . Mean weight of patients of Group A was 65 ± 9.17 kg and mean weight of Group B was 67.98 ± 9.21 kg.

As shown in table 1, out of 40 patients of Group A, efficacy of the treatment was noted in 33(82.5%) patients. In Group B out of 40 patients, efficacy was noted in 22 (55%) patients. Efficacy rate was significantly ($P = 0.015$) higher in group A as compared to group B.

Comparison of efficacy of treatment between male patients of both treatment groups was done. Out of 25 (62.5%) male patients of group A, efficacy of the treatment was noted in 22(88%) patients. Out of 23(57.5%) male patients of treatment group B, treatment was found effective in 14(60.87%) patients. Statistically significant ($P = 0.04$) difference between the efficacy rate of both treatment groups was noted. There were 15(37.5%) and 17(42.5%) female patients in treatment group A & B respectively. Efficacy of treatment was noted in 11(73.33%) patients and 8(47.06%) patients of treatment group A & B respectively, but the difference was statistically insignificant with p value 0.1657 (Table 2).

Patients of both groups were divided into two age groups i.e. 15-33 years and age group 34-50 years. Total 22 (55%) patients of treatment group A and 23 (57.5%) patients of treatment group B belonged to age group 15-33 years. Treatment was found effective in 20 (90.91%) patients of treatment group A and 13 (13.04%) patients of treatment group B. Frequency of efficacy of treatment was significantly higher in treatment group A as compared to treatment group B with p value 0.016. Total 18 (45%) patient of treatment group A and 17 (42.5%) patients of treatment group B belonged to age group 34-50 years. Efficacy of treatment was noted in 13 (72.22%) and 9 (52.94%) patients of treatment group A & B. Difference for efficacy was statistically insignificant with p value 0.305 (Table 3).

Patients were divided into two weight groups, weight group 50-70 kg and weight group 71-85 kg. In weight group 50-70 kg, out of 28 (70%) patients of

group A, treatment was found effective in 23 (82.14%) and among the 25 (62.5%) patients of group B, treatment was found effective in 15 (60%) patients and the difference was insignificant with p value 0.1257. Total 12 (30%) patients and 15 (37.5%) patients belonged to weight group 71-85 kg and efficacy of treatment was noted in 10 (83.33%) patients and 7 (46.67%) patients of treatment group A & B. But the difference of efficacy between the both treatment groups was statistically insignificant with p value 0.1071. (Table 4)

Table 1: Comparison of efficacy between both groups

Group	Efficacy		Total
	Yes	No	
A	23(82.5%)	7(17.5%)	40
B	22(55%)	18(45%)	40

P value: 0.015

Table 2: Comparison of efficacy for gender

Group	Efficacy		Total
	Yes	No	
Male patients (0.04)			
A	22(88%)	3(12%)	25(62.5%)
B	14(60.87%)	9(39.13%)	23(57.5%)
Female patients (0.1657)			
A	11(73.33%)	4(26.67%)	15(37.5%)
B	8(47.06%)	9(52.94%)	17(42.5%)

Table 3: Comparison of efficacy for age groups

Group	Efficacy		Total
	Yes	No	
Age group 15-33 years(0.016)			
A	20(90.91%)	2(9.1%)	22(55%)
B	13(13.04%)	10(43.48%)	23(57.5%)
Age group 34-50 (0.305)			
A	13(72.22%)	5(27.78%)	18(45%)
B	9(52.94%)	8(45.06%)	17(42.5%)

Table 4: Comparison of efficacy for weight groups

Group	Efficacy		Total
	Yes	No	
50-70 Kg (0.1257)			
A	23(82.14%)	5(17.86%)	28(70%)
B	15(60%)	10(40%)	25(62.5%)
71-85 Kg (0.1071)			
A	10(83.33%)	2(16.67%)	12(30%)
B	7(46.67%)	8(53.33%)	15(37.5%)

DISCUSSION

Psoriasis vulgaris is a lifelong, chronic, immune mediated, inflammatory skin condition affecting approximately 2% of the general population.⁹ Although there are several clinical variations of psoriasis, the typical skin lesions are well defined, red, indurated plaques with silver, micaceous scale. The clinical features of plaque psoriasis vary due to

many factors, including chronicity of disease, size of the lesions, body sites, percentage of body surface area (BSA) involved, symptomatology, such as pruritus, burning, or pain, associated joint disease, and prior therapy³.

In present study, mean age of the patients with psoriasis in group A was 32.82 ± 11.084 years and mean age of the patients of Group B was 33.00 ± 11.200 years. Comparable mean age of the patients with plaque psoriasis was found by Sommerburg et al in their study¹⁰.

Efficacy of treatment was noted in 82.5% patients of group A in 55% patients of group B. Significant difference was observed for efficacy between the both treatment groups. In one study by lest⁸ J et al found efficacy in 89% patient of plaque psoriasis treated with acitretine and UVB. Findings of this study was comparable with findings of our study. Another study by Spuls¹¹ et al found combination of acitretin and UVB treatment effective in 75% patients of plaque psoriasis which are comparable with our study. In another study by Muchenberger¹² et al efficacy for patients of psoriasis treated with combination of acitretine and UVB was 90%. Tanew et al¹³ also found in their study that complete clearing of psoriasis occurred in 96% of the patients with combination therapy of acitretine and UVB. Sommerburg et al¹⁰ also found marked (in 85% patients) improvement in patients of psoriasis treated with combination therapy of acitretine and UVB. In a study by Ruzicka¹⁴ et al, combination of acitretin and UVB treatment in patients of psoriasis achieved efficacy as 79% which is comparable with our study.

CONCLUSION

In present study two groups of patients with plaque psoriasis were treated with combination of UVB and Acitretine and UVB alone. Results of this study showed a significant difference between the efficacies of two treatment groups. But insignificant association of efficacy was seen with gender and age.

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