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EFFICACY COMPARISON OF ACITRETIN VERSUS NARROW BAND ULTRAVIOLET B IN THE TREATMENT OF PSORIASIS

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ABSTRACT:

Objective: To compare the efficacy of Acitretin versus Narrow Band Ultraviolet B in the treatment of chronic Psoriasis

METHOD: This randomized clinical trial was carried out at the department of dermatology DHQ Sargodha Hospital from Dec 2021 to Dec 2022. After getting approval from the Ethical review committee, 80 psoriasis patients were selected. They were suffering from moderate to severe plaque psoriasis. They were divided into two groups of 40 each. Group A patients received acitretin while Group B patients received Narrow Band Ultraviolet B for 6 weeks. Efficacy end point was decided to be PASI 50.

Results: In group A, 82%patients achieved PASI 50 while in Group B 39% patients achieved PASI 50 . The efficacy of acitretin was significantly higher than that of Narrow Band Ultraviolet B

Conclusion: Acitretin is a useful treatment modality for the treatment of moderate & severe plaque psoriasis.

Keywords: Efficacy, Acitretin, Narrow Band Ultraviolet-B, Psoriasis.

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Introduction:

Psoriasis is a common skin disorder caused by abnormality in immune system. Its prevalence varies from 1 to 5% in different countries.[1] It has a significant impact on health care system due to cost of therapy and disability caused by the disease.[2] The cause of this debilitating disease is a dysfunctional innate and acquired immune system that leads to release of cytokines that target skin and joint tissues. This activates nuclear factor-kβ signaling pathway and leads to Th1 & Th17 cells via differentiation of helper T cells. Depending upon patient factors and disease severity, various topical and systemic agents are used worldwide to counter the cytokine cascade[3]. Narrow band ultraviolet B is used because it targets disease cells only and spares normal tissues. Immunomodulation by UVB causes death of T cells[4]. This reduces the amount of cytokines and interleukins. Acitretin is a second generation retinoid and active metabolite of etretinate[5]. It suppresses vascular endothelial cells, migration of neutrophils. It also suppress inflammation. It regulates keratinocyte differentiation and proliferation[6].

Combination of Acitretin and Narrow Band Ultraviolet B therapy has been shown to be useful in the treatment of Psoriasis[7]. However, our patient population from third world country cannot afford two treatment modalities at once. So we conducted this study to evaluate the effectiveness of only one treatment module; as it may reduce the cost & health care burden of psoriatic patients.

Material & Method:

This randomized clinical trial was carried out at the department of dermatology DHQ Sargodha Hospital from Dec 2021 to Dec 2022; after getting approvalfrom the Ethical review committee. Patients of both

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genders and age between 18& 60 years, having moderate psoriasis (PASI >10) diagnosed clinically were included. Written Informed consent was taken from all patients .patients were selected by non-purpose consecutive sampling. Exclusion criteria was less than 18 years of age, pregnant or lactating females, females not willing for contraception, renal patients, hepatic patients, photosensitive patients, patients having premalignant skin lesions, patients having received oral retinoids, phototherapy immunocompromised patients. Detailed history and physical & cutaneous examination of all patients was done. Pre-treatment Psoriasis Area and Severity index (PASI) scores were calculated and photographs were taken. Renal and liver function tests were carried out to rule out contraindications to Acitretin. The patients were divided into two equal groups as follows. Group A was given Acitretin at a dose 0.5mg /kg daily for 6 weeks. Test dose was tested on upper back of every patient before starting treatment. Group B was tested with NBUVB thrice weekly using whole body exposure chamber of Daavlin Phototherapy Unit ,fitted with 10 Philips 100W TL-01 lamps for 6 weeks. Post treatment PASI scores were calculated and photographs were taken. Demographic and clinical data was recorded on a pre-designed proforma. Efficacy was defined as achievement of PASI 50% that is at least 50% reduction in PASI score after treatment.

Statistical Analysis:

Data was entered and analyzed using IBM SPSS statistics for Windows, version 20. Numerical variables like age, BMI, baseline and post treatment PASI scores were presented as mean ± standard deviation. Qualitative variables like gender and efficacy were presented as frequencies and percentages. P value less than 0.05 was considered significant.

Results:

Total 120 patients were selected. 40 had to be excluded. 80 patients were finally enrolled. 40 were allocated randomly in each group. There was no significant difference between mean and median score of Age , gender , BMI , PASI Score before treatment & duration of disease. Both groups had similar demographic data. The mean PASI50 score before treatment was 43.14 in Group A& 40.19 in Group B.

Parameter	Group A	Group B	P value
Age mean (years)	46.63 (41.5-50.5)	45.15 (43.7-47.5)	0.23
Gender	Male 22 Female 18	17 23	0.32
BMI Median	22.7 (16-39)	23(11-36)	0.16
Mean PASI Score before treatment	43.14± 4.05	40.19±11.56	0.25
Duration of disease	< 2 years 9 ≥ 2 years 31	8 32	0.63

After 6 weeks treatment the Mean PASI score in Group A was 13.14± 4.05 whereas in Group B was 29.19± 2.56 . Overall 82% patients achieved PASI50 in Group A whereas 16% patients achieved PASI50 in Group B. Our data showed efficacy was not affected by age, gender, BMI and duration of disease since P value were not significant.

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Demographic Parameter	PASI 50 ACHIEVED Group A	Group B	P value
OVERALL	33 (82%)	16 (39%)	< 0.001
Gender	Male 18 (82%) Female 15(83%)	10 (58%) 6 (26%)	0.17
BMI	Obese 16 (72%) Non obese 17(70%)	8 (50%) 6 (26%)	0.16
Mean PASI Score Achieved after 6 weeks treatment	13.14± 4.05	29.19±2.56	<0.05
Duration of disease	< 2 years 6 (66%) ≥ 2 years 27(87%)	5 (62%) 11 (34%)	<0.22

Discussion:

Many treatment options have been used over time for the treatment of psoriasis with variable success. Phototherapy is costly option and there is a slight risk of skin cancer .[8] Due to fear of skin cancer the patients compliance with phototherapy is reduced.

We found significantly higher patients achieved efficacy with Acitretin than with Narrow Band Ultraviolet-B therapy. Similar studies were done by Kampitak et al, Saeed et al, Spuls et al, Ruzicka T et al. However, all of these studies used combination of Acitretin and UVB, our study used Acitretin alone. Saeed et al carried his study in Chinese population in 2016 and reported improvement of 80% in psoriatic patients.[9] Kampital et al study was done in Thailand in 2006[10].Spuls et al (2003) reported clearance of 75% in American population[11]. Ruzicka T et al study was done in West Germany in 1990[12] with similar results. Lebwohl et al in 1999 also reported good efficacy with Acitretin[13].

Patients in our population are afraid of phototherapy and they cannot make frequent visits for Hospital based phototherapy due to rising cost of petrol/fuel. Many patients live far from source of phototherapy. They want to stay home and continue their treatment at home. Our patients lose their confidence while meeting other dermatology patients in hospital wards and they like to stay alone at home. So Acitretin only is a cost effective good option for them with similar efficacy.

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