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Original article

To Analyze The Efficacy Of Methotrexate And Acitretin In Psoriasis: Teaching Hospital Based Study At West Bengal.

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Abstract

Background: Psoriasis is a common T-cell mediated disorder seen in approximately 1–3% of the general population. In particular, there is a greater risk of developing severe vascular events such as cardiovascular and cerebrovascular diseases. In addition, the prevalence rates of cardiovascular risk factors are increased in psoriasis patients. Once considered a skin disease alone, psoriasis is now considered to be part of a multi-system inflammatory disorder. Moreover, the chronicity of the disease has a significant psychosocial impact and affects the quality of life of the patient and their caregivers.

Aims and Objectives: To analyze the efficacy of Methotrexate and Acitretin in psoriasis in teaching hospital based study at West Bengal**.**

Materials & Methods: 74 patients diagnosed with palmoplantar psoriasis were divided into 2 groups of 37 each. Group I patients were prescribed oral methotrexate15mg/week for 3 months and group II were given oral acitretin 0.5 mg/kg daily for 3 months. Modified psoriasis area severity index (MPASI) score was assessed**.**

Results and Observations: There were 16 males and 21 females in group I and 19 males and 18 females in group II. The mean MASI score at baseline, 1 month, 2 months and 3 months was 58.2, 38.4, 23.2 and 14.6 and 60.4, 40.2, 30.5 and 20.4 in group I and II respectively. The difference was significant ($P< 0.05$).

Conclusion: Oral methotrexate and acitretin were highly effective in treating palmoplantar psoriasis. Oral methotrexate reduces the lesions faster than acitretin.

Keywords: Cardiovascular disease, Palmoplantar psoriasis, Oral methotrexate, Acitretin, methotrexate, Psoriasis, MASI score, Modified psoriasis area severity index (MPASI), Cerebrovascular diseases.

Introduction:

Psoriasis is a common T-cell mediated disorder seen in approximately 1–3% of the general population. [1] Once considered a skin disease alone, psoriasis is now considered to be part of a multi-system inflammatory disorder. Moreover, the chronicity of the disease has a significant psychosocial impact and affects the quality of life of the patient and their caregivers. Hence, adequate treatment of the disease is of utmost importance to stop the "psoriatic march."[2]

Psoriasis is a common and chronic inflammatory disease, and may cause significant impairment to the patient's quality of life. Traditionally, psoriasis has been regarded as a disease affecting only the skin and joints. In recent years, studies from different countries have shown that psoriasis is a systemic inflammatory disease, which is often associated with various comorbidities. In particular, there is a greater risk of developing severe vascular events such as cardiovascular and cerebrovascular diseases [3,4,5,6,7] In addition, the prevalence rates of cardiovascular risk factors are increased in psoriasis patients, including hypertension, diabetes, obesity, dyslipidemia, subclinical atherosclerosis, and smoking [8,9,10]. It has been proposed that systemic inflammation may provide a mechanistic link between psoriasis and cardiometabolic disorders. Lifestyle modifications, assessment of comorbidities and removal of precipitating factors need to be part of the therapy. Conventional pharmacotherapy includes topical agents, phototherapy, first-line systemic therapy (methotrexate, cyclosporine and acitretin), biologics and oral small molecules such as apremilast. The choice of the systemic drug depends on the patient's age, comorbidities, prior response to treatment, severity and stability of the disease and the cost of treatment. [11] Psoriasis is a common chronic, disfiguring, inflammatory skin condition, in which both genetic and environmental influences have a critical role, and clinically characterized by sharply demarcated, erythematous, silvery white, scaly, indurated plaques mainly distributed over extensor surfaces, lower back and scalp [12] . Psoriasis is a chronic inflammatory skin disease characterized by a prominent T-cell infiltrate, epidermal hyper proliferation and abnormal keratinocyte differentiation (parakeratosis), infiltration of many different leukocytes and increased vascularity in the dermis [13] . It is systemic immune-mediated disease accompanied by arthritis in a significant percentage of patients called psoriatic arthritis. Psoriasis has a substantial influence on health-related quality of life that is comparable to that of other serious medical conditions e.g. cancer, heart disease, diabetes and depression [14] . Various types of psoriasis are described. Among them palmoplantar psoriasis affecting palms and soles is very resistant to treatment. This could be due to the greater thickness of the involved skin, which makes it difficult for the topical agents to penetrate, or koebnerization triggered by repeated trauma [15] . Therapy for palmoplantar psoriasis usually consists of topical medications with or without occlusion, coal tar, PUVA therapy, systemic retinoids, and methotrexate or cyclosporine. Existing topical treatments are ineffective and show unpredictable response. 9 So other systemic can be used for patients with disability or added to the regimen of those who have failed topical therapy. Acitretin is a vitamin A derivative and is approved for the treatment of palmoplantar psoriasis [16] . The present study was conducted to assess efficacy of methotrexate and acitretin in the management of psoriasis.

Materials and Methods:

The present study was conducted in the Department of Dermatology, Santiniketan Medical College and Hospital, Bolpur, West Bengal, India, among 74 patients diagnosed with palmoplantar psoriasis of both genders. All enrolled patients were informed regarding the study and their consent was obtained. Data of each patient such as name, age, gender etc. was recorded. Patients were divided into 2 groups of 37 each. Group I patients were prescribed oral methotrexate 15mg/week for 3 months and group II were given oral acitretin 0.5 mg/kg daily for 3 months. Follow up was done monthly once by calculating modified psoriasis area severity index (MPASI) score. Improvement

was graded as: no change, slight improvement, moderate, marked and almost cleared. Results thus obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.

Results and Observations:

Table 1: Distribution of patients with the groups

Groups	Group 1	Group 2
Drug name	Oral methotrexate	Oral acitretin
Male:Female	16:21	19:18

Table I shows that there were 16 males and 21 females in group I and 19 males and 18 females in group II.

Table 2: Comparison of MASI score.

Group	Baseline	1month	2months	3months	P value
Group 1	**58.2**	**38.4**	**23.2**	**14.6**	**0.04**
Group 2	**60.4**	**40.2**	**30.5**	**20.4**	**0.05**
P value	**0.2**	**0.14**	**0.05**	**0.02**	

Table II, graph I shows that mean MASI score at baseline, 1 month, 2 months and 3 months was 58.2, 38.4, 23.2 and 14.6 and 60.4, 40.2, 30.5 and 20.4 in group I and II respectively. The difference was significant (P< 0.05).

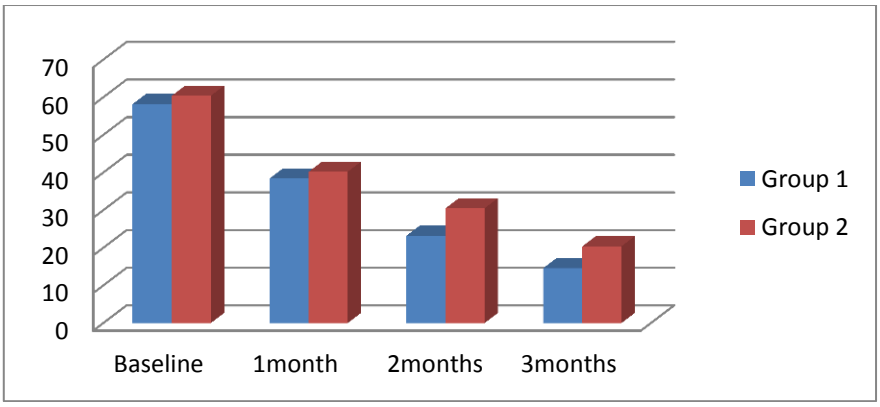

Figure 1: Comparison of MASI score.

Discussion

Psoriasis is a chronic disease. Psoriasis is a multisystem inflammatory disease with predominantly skin and joint involvement. It has a bimodal age of onset and affects both sexes equally. Pathogenesis is multifactorial, involving dysregulated inflammation and genetic associations. Beyond the physical dimensions of the disease, psoriasis has an extensive emotional and psychosocial effect on patients; it can result in stigmatization, poor self-esteem, and increased stress, affecting social functioning and interpersonal relationships.

Because of the recalcitrant nature, easy visibility and location on functionally exposed parts, the condition can lead to disability and significant psychological effects in many patients [17] . Many patients with palmoplantar psoriasis do not have psoriasis of other parts of their body. Diagnosis of psoriasis is usually clinical. Treatment of palmoplantar psoriasis is very demanding and challenging to the physician [18] . The physical quality of life index is severely impaired with this type and with successful treatment there is significant improvement in quality of life [19] . The present study was

conducted to assess efficacy of methotrexate and acitretin in the management of psoriasis. In present study we found that there were 16 males and 20 females in group I and 18 males and 18 females in group II. Charles B [20] . Reported a case series, where a study of 45 patients with mild to moderate palmoplantar psoriasis treated with oral acitretin for 3 months. Results showed that mean PASI score reduced from 11 at baseline to 1.65 at the end of 3 months. 27 patients developed cheilitis and 10 patients showed elevation in triglyceride levels. Finally, they concluded that measurable improvement was seen in 100% of patients. We found that mean MASI score at baseline, 1 month, 2 months and 3 months was 58.2, 38.4, 23.2 and 14.6 and 60.4, 40.2, 30.5 and 20.4 in group I and II respectively. Giovanni et al. [21] . 17 reported the efficacy of oral acitretin in 42 patients with hyperkeratotic palmoplantar dermatitis. After 1 month of treatment oral acitretin was significantly better in clearing the lesions ($P<0.0001$) They advised oral acitretin as the first choice.

Parsam et al. [22] . In their study 50 patients with palmoplantar psoriasis were randomized into 2 groups. Patients in group I received oral methotrexate and patients in group II received acitretin for 3 months. Baseline grading was done with Modified Psoriasis Area Severity Index (MPASI) score. MPASI score was assessed monthly. Scores at the beginning and at the end of 3 months of treatment were compared. Quality of life was assessed using a questionnaire. Results: MPASI score in group I was 57.15 ± 17.17 at baseline and 14.50 ± 13.55 at the end of 3rd month. The difference in scores before and after treatment was statistically significant. MPASI score in group II was 57.76 ± 18.60 at baseline and 21.30 ± 8.168 at the end of 3rd month. Intragroup analysis showed statistically significant difference before and after treatment. There was significant improvement in the quality of life after treatment. Karn et al. [23] . Compared the efficacy of methotrexate and cyclosporine in the treatment of Psoriasis. A total of 64 patients (33 receiving MTX and 31 receiving CsA) were enrolled. These patients were followed every week for first month and their PASI score and side effects were recorded at 0, 1st, 2nd and 3rd month interval. In the study, the mean (± S.E) PASI score at base line was 23.34 ± 1.12 for MTX and 21.25 ± 1.07 for CsA group. After 12 weeks of treatment the mean ± S.E PASI score found to be 5.37 ± 0.42 for MTX and 4.56 ± 0.41 for CsA group. The difference in the response between the groups acquired statistically not significance meaning there is no difference in the effectiveness of MTX and CsA. Corticosteroids are considered the cornerstone of topical treatment. Patients with mild psoriasis often well tolerate corticosteroids well and find them effective. Overall, topical steroids in various formulations, strengths, and combinations are efficacious initial therapies for rapid control of symptoms.[24] For instance, salicylic acid, a keratolytic agent, can be combined with steroid therapy to help treat plaques with thicker scales, for better penetration of medication. [25]

Conclusion

Both oral methotrexate and acitretin were highly effective in treating palmoplantar psoriasis. Oral methotrexate reduces the lesions faster than acitretin. But in some ways acitretin and oral methotrexate were efficient in treating palmoplantar psoriasis. The efficacy of both drugs was found to be comparable.

Conflict of interests: None

Source of funding: None

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