Efficacy and Safety of Methotrexate in chronic actinic dermatitis. A pilot study

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Efficacy and Safety of Methotrexate in chronic actinic dermatitis. A pilot study

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Abstract.

Objectives. Efficacy and safety of methotrexate in Chronic Actinic Dermatitis.

Methods. Thirty patients clinically and biopsy proven cases of chronic actinic dermatitis were included in study after fulfilling the inclusion criteria. Patients given methotrexate according to protocol and efficacy was noted according to improvement in PASI score.

Results. A total of thirty patients, 27 male and 3 females, with a mean age of 57.5 years, were included in study. Skin type three was observed in 10 patients, type four in 14 patients and six patients had type five skin. Duration of disease was <1 yr in 5 pts, 2-5 yr in 14 pt, 6-10 yr in 8 patients and >10 yr in 6 pts.

Twenty seven patients received 10mg and 3 patients received dose of 15mg.Thirty patients completed 6 months of methotrexate therapy. One patient stopped treatment because of mild gastrointestinal side effects and deranged LFTs. SGPT was 3 time above normal when treatment was stopped. Patients were evaluated at 3,4 and 6 months, 20%(6) showed complete recovery, 43%(13) showed 50-75% recovery , 23%(7 showed 25-49% recovery. Rest showed no improvement. Five males and one female showed complete recovery.

Means of initial and final PASI showed significant results with P value of .000. {Fig 1}

Regarding skin types, four patients with skin type 3 and two patients with skin type 2 showed full recoveries to treatment.

The clinical response to treatment was observed at 4-6 wks which reached to maximum in 4-6 months.

Conclusion.

Although no definite conclusion can be derived from the present study due to its limitations but we found methotrexate to be a potentially efficacious and safe drug in the treatment and steroid sparing drug in chronic actinic dermatitis. Larger studies with follow up for long time will confirm its efficacy

Key words. Chronic actinic dermatitis, efficacy, safety, methotrexate, PASI.

Introduction:

Chronic actinic dermatitis is an idiopathic photosensitive chronic dermatosis primarily induced by ultraviolet B (UVB) and less frequently by ultraviolet A (UVA) and visible light1.

It is characterized by a persistent eczematous eruption on exposed skin, occasionally associated with infiltrated papules and plaques.[2] Chronic actinic dermatitis has a worldwide incidence and has been reported in Asia, Africa, Europe and America with increased cases in the summer time when sun exposure is the greatest [1, 3.] It affects all skin types[1].The mean age of onset ranges between 36 to 63 years and more common in outdoor workers.[2]

The disease runs a chronic course, impairing the quality of life.

Diagnosis is based on clinical, histopathological and photobiologic features[4].

Rarely it has a tendency for erythroderma (exfoliative dermatitis) [5].

Treatment consists of patient education (avoidance of sunlight and adequate sun protection), topical corticosteroids, and emollients. Topical/systemic steroids are the mainstay of therapy however their prolong use results in side effects[6].

When these measures are insufficient alone, systemic immunosuppressants may be considered. A mostly steroid sparing agent, including Azathioprine and Cyclosporine has been used to treat the condition with variable results[3]. Highlighting the need for another effective and cheap therapeutic tool.

Methotrexate has been used in difficult to treat cases of chronic actinic dermatitis[7]. It is an antimetabolite and causes immunosuppression by inhibiting lymphocytes[7].It is cheap, has a good safety profile and easy to monitor for side effects. It also has a rapid onset of action providing rapid induction of improvement[7].Moreover dermatologists are familiar with methotrexate use in lot other dermatosis but not much literature exists on its efficacy in chronic actinic dermatitis.

The rationale of this pilot study is to validate the efficacy and safety of methotrexate in chronic actinic dermatitis in our local population and if found to be effective the results will be shared with other dermatologists and recommendations will be given so that the patients are treated efficiently and effectively in short period of time. Moreover it is cheap and is found effective therapy in variety of dermatosis.

Objective: Efficacy and safety of methotrexate in Chronic Actinic Dermatitis.

Operational Definitions:

Chronic actinic dermatitis: A disease characterized by photosensitivity which manifest clinically by persistent eczematous rash of 3 months or greater duration primarily on sun exposed parts and confirmed histological by an infiltrate composed of lymphocytes and macrophages in dermis.

Methotrexate: Antimetabolite agent with anti-inflammatory and immunosuppressive effect used in various dermatological conditions.

Efficacy: Clearance of leions above 25% of initial lesion.

Safety: It will be measured in terms of side effects.

Materials and Methods

Study Design: Pilot Study

Settings: Dermatology Department, Lady Reading Hospital Peshawar.

Duration of Study: Six months

Sample size: Thirty patients

Sampling Technique: Non Probability Consecutive Sampling

Inclusion Criteria

Clinically and biopsy proven cases of chronic actinic dermatitis.

Any gender

All ages

Fitzpatrick skin type. All skin types

Exclusion criteria:

Pregnant and lactating women

Any patient having history of chronic active infection or sensitivity to methotrexate will be excluded.

Patients who were on any drug likely to influence the eczema were not enrolled.

Patients who are immunocompromised or have liver or renal disease or an abnormal complete blood count.

Those treated prior with any other steroid sparing agent.

These factors are confounders and will make the study biased if included.

Those patients who are currently taking oral steroids or in last month were excluded.

Complete blood examination hemoglobulin ,total leukocyte count, liver and renal function tests, chest X-ray and urinalysis were performed.

The clinical severity was evaluated visually using erythema, induration and scaling using PASI score[5]. Photograps were taken initially and on each visit. Initial PASI was calculated. Follow up was done on first week and then monthly for 6 months. The observer was same each

time for each case. Improvement was observed on every visit and was graded according to PASI score.

A response to 75-100% was considered excellent,50-74 % as good,25-49 as fair and 0-24 as poor.

End point of study was complete clearance of Lesion.

Patients were given 10 mg/wk along with Sun protection measure and sun blocks were advised. Oral antihistamines were given. Dose of Methotrexate was increased to 15mg/wk if less than 20 % improvement was observed after 4-5 weeks. The dose of methotrexate achieving complete clearance i.e. more than 75% reduction in score.

Data collection and procedure: The study was carried out after approval from the hospital ethical and research committee. All patients meeting the inclusion criteria were included in the study through OPD. A detailed history, physical examination and laboratory investigations were carried out for every patient. Written informed consent was taken from all patientsparticipating in study.

DATA ANALYSIS.

Analysis of data was done in SPSS version 20 and Mean SD was calculated for numerical variables like age, duration, Frequencies and percentages were calculated for categorical variables like gender, Fitzpatrick skin type and efficacy. Efficacy was stratified among age, gender, Fitzpatrick skin type, duration of symptoms to see the effect modification.

Results

Thirty patients, 27 male and 3 females, with a mean age of 57.5 years , were studied. Skin type 3 was observed in 10 pts type 4 in 14 patients and type5 in 6 patients. Duration of disease was <1 yr in 5 pts, 2-5 yr in 14 pt, 6-10 yr in 8 patients and >10 yr in 6 pts.

All patients in study were treated with methotrexate at a dose ranging from 10-15 mg. Twenty seven patients received 10mg and 3 patients received dose of 15mg.Thirty patients completed 6 months of methotrexate therapy. 1 patients stopped treatment because of mild gastrointestinal side effects and deranged LFTs. SGPT was 3 time above normal when treatment was stopped. Patients were evaluated at 3,4 and 6 months, 20%(6) showed complete recovery, 43%(13) showed 50-75% recovery , 23%(7 showed 25-49% recovery. Rest showed no improvement. Five males and one female showed complete recovery.

Among 30 patients 23 patients received 10mg methotrexate and 7 patients received 15mg of methotrexate. Among six patients with complete recovery 4 patients received 10mg of MXT and 2 patients receive 15 mg. There was one patient who showed poor response inspite of using 15mg of methotrexate.

Means of initial and final PASI score showed significant results with P value of .000. {Fig 1}

Regarding skin types 4 patients with skin type 3 and 2 patients with skin type 2 showed full recoveries.

The clinical response was evident at 4-6 wks and was the maximum at 4-6 months.

Discussion

Methotrexate is antimetabolite that act on proliferating T and B cells which are more sensitive than nonimmune cells to the depletion of purines and pyrimidines.[8] Methotrexate provides rapid induction of improvement. Hence, administering methotrexate will give rapid cheap and effective treatment in chronic actinic dermatitis. Bareham *et al*. experimentally proved the synergistic action of azathioprine-methotrexate combination[9]. He suggested that interaction of azathioprine and methotrexate is synergistic if azathioprine is given before methotrexate but additive if azathioprine is given after methotrexate. Keeping above facts in mind study was conducted on efficacy of methotrexate in chronic actinic dermatitis.

Methotrexate was well tolerated and no side effects of serious nature were observed.One of patient had to stop the treatment due to severe nausea and vomiting. Alteration in liver enzymes were observed with intake of methotrexate although they were of not serious nature but these alterations necessitateregular monitoring of liver enzymes with intake of methotrexate.

Results of deranged LFTs in our study were comparable with study by J.Barke which showed similar fiqure.[10]

The data here support that Methotrexate can be an effective and useful drug in the management of chronic actinic dermatitis . It can provide a cure to this chronic disabling condition.

As the number of patients ware limited as it was pilot study, therefore, further studies are required to be done in the evaluation of this potentially beneficial drug in the treatment of chronic actinic dermatitis.

Conclusion

Although no definite conclusion can be derived from the present study due to its limitations but we found methotrexate to be a potentially efficacious and safe drug in the treatment and steroid sparing drug in chronic actinic dermatitis. Larger studies with follow up for long time will confirm its efficacy

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One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
initialpasi	30	26.6000	8.04127	1.46813
finalpasi	30	11.9000	5.00586	.91394

One-Sample Test

	Test Value = 0					
					95% Confidence Interval of the Difference	
	t	df	Sig. (2-tailed)	Mean Difference	Lower	Upper
initialpasi	18.118	29	000	26.60000	23.5973	29.6027
finalpasi	13.021	29	000	11.90000	10.0308	13.7692

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