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OLD DRUG WITH NEW INDICATION : METHOTREXATE IN TREATMENT OF LICHEN PLANUS

Dermatology

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ABSTRACT

Introduction: Methotrexate is a folate antagonist , has an anti-proliferative effect on keratinocytes, anti inflammatory effect, inhibition of DNS synthesis. FDA approved indications of methotrexate are Psoriasis , Sézary syndrome. Lichen planus is a papulo-squamous disease that affects the skin , nails and mucous membranes. **Objective Of Study:** To evaluate the efficacy of methotrexate in treatment of lichen planus. **Materials And Methods:** A prospective analytical study on effect of methotrexate in treatment of 30 lichen planus cases evaluated with the help of predesigned proforma, complete clinical examination and improvement of lichen planus severity score. **Results:** Out of 30 patients , males were 53.33% and females were 46.67% . most of the patients belonged to 41 to 50 years age group. Grade 3 improvement of lichen planus severity scoring is seen in majority of lichen planus patients. **Conclusion:** Methotrexate monotherapy, is a safe treatment option, which arrested disease progression in 3-6 weeks and lower the LP severity score within 12 weeks of study period in cutaneous LP.

KEYWORDS

lichen planus, methotrexate, lichen planus severity score.

INTRODUCTION:

Lichen planus is an inflammatory disease, affecting the skin and oral mucosa but may also involve the nails, scalp, esophagus, and anogenital regions.[1] it typically presents as pruritic violaceous papules most commonly on the extremities. Middle-aged adults are most commonly affected. Immunological reaction plays role in the pathogenesis of Lichen planus. CD8+ T cell activation is the first step in the pathogenesis[2]. Infectious agents, drugs, stress, and allogenic cells are also known to be involved in the pathogenesis of Lichen Planus. There are many variants of lichen planus. The disease progression is unpredictable. It could last for a few months to many years. It can occasionally take a chronic, relapsing course.The duration of disease varies according to the extent, site of involvement and the morphology of the lesions. Oral lichen planus is a chronic inflammatory disease of involving oral mucosa with or without associated skin involvement. Oral LP is difficult to treat and typically lasts longer than cutaneous LP. Methotrexate is a folic acid antagonist, with anti-inflammatory activity by blocks migration of activated T cells[3]. Despite methotrexate being safe there is not much data available on its usage in Lichen Planus.

AIM OF THE STUDY:

To evaluate the efficacy of methotrexate in treatment of the patients with lichen planus attending the Dermatology OPD in ASRAM.

NEED FOR THE STUDY:

Lichen planus is a severely pruritic disease with a chronic relapsing course. The first line of management has been corticosteroids, both topical, intralesional and oral. Long term usage of corticosteroids has its own share of adverse effects. Methotrexate can be a great alternative to corticosteroids and could be used as steroid sparing drug in treatment of lichen planus.

MATERIALS & METHODS:

This study was conducted on patients with lichen planus attending the Out Patient Department at a tertiary care center. Patients were recruited from OPD and study was conducted from December 2020 to October 2022.

STUDY DESIGN:

A prospective analytical study

Sample Size:

Study comprised of 30 patients of biopsy confirmed lichen planus, evaluated with the help of predesigned proforma that includes complete history regarding the risk factors. Complete clinical examination was done to evaluate the patient.

Inclusion Criteria:

Patients attending OPD who are between the age of 12 - 60 years, belonging to both the sex with biopsy confirmed, symptomatic lichen planus lesions and patients who have not been on any form of therapy for at least a month before their enrolment were included in the study.

Exclusion Criteria:

Patients using drugs that can cause lichenoid reaction, pregnant/ lactating women, children below 12 years of age, patients with prior history of hypersensitivity to methotrexate and patients with tuberculosis, renal dysfunction patients, liver dysfunction patients were excluded from the study. Patients are followed up every 3 weeks, for 12 weeks. Patients who were not willing to follow up were also excluded from the study.

METHOD:

A study population of 30 patients with biopsy confirmed lichen planus will be taken and detailed case history of each patient with reference to name, age, sex, address, IP/OP number, occupation, marital status, duration of complaints, risk factors, treatment history and other associated systemic conditions such as diabetes, tuberculosis, hypertension, family history, was recorded. General and systemic examinations done. Clinical features like site of involvement and mucosal involvement were noted and examination of palms, soles, nails and hair done. Prerequisite workup was done by complete blood picture, Liver Function Test, Renal Function Test, lichen planus severity index and Photographic evidences will be collected. Oral Methotrexate of dose 0.2-0.4 mg/kg is given once weekly, with 5mg Folic acid supplementation for the rest of the week, for 12 weeks.

During the follow up Lichen planus severity index is calculated for every case at baseline and every visit at 3 weeks interval for 12 weeks. Oral lichen planus severity is calculated using REU SCORE AND PAIN SCORING with visual pain analogue scale. Pain scoring is done by asking the patients to rate their pain in a scale of 1-10. The final oral

LP score is the sum of the REU score and PAIN SCORE.

Grading of total improvement (pre and post-treatment) is done using the following grading. 5 stages of grading were considered for describing the improvement of Lichen Planus severity scoring for pre and post-treatment - GRADE 1 - 1% - 20%, GRADE 2 - 21% - 40%, GRADE 3 - 41% - 60%, GRADE 4 - 61% - 80%, GRADE 5 - 81% - 100%.

RESULTS:

AGE :

Most of the patients (40%) that participated in the study were between the ages of 41 and 50 years. 26.67 % of patients belonged to age group of 31 to 40 years. 13.33 % belonged to ages of 11 to 20 years and 21 to 30 years and 6.67% were between the ages of 51 to 60 years.

SEX DISTRIBUTION:

Out of 30 patients who participated in the study, males were 53.33% and females were 46.67%.

PATIENT DISTRIBUTION BASED ON TYPE OF LICHEN PLANUS

Out of 30 patients in study, 24 patients (80%) had cutaneous lichen planus and 6 patients (20%) had oral lichen planus.

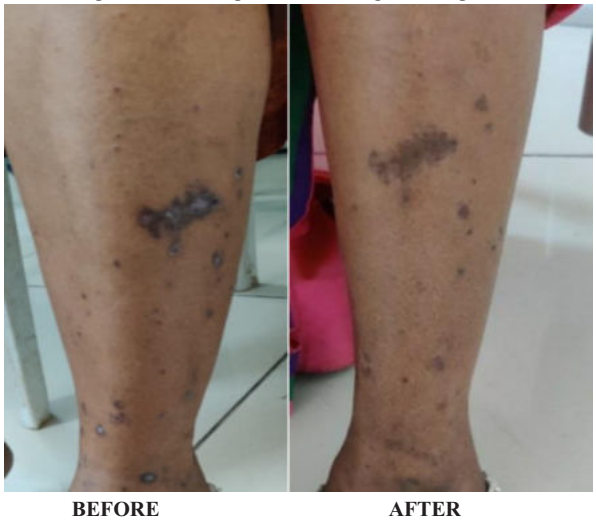
GRADE OF IMPROVEMENT IN LICHEN PLANUS SEVERITY SCORE

Table – 1 Grade Of Improvement In Lichen Planus Score

GRADE	NUMBER OF PATIENTS	PERCENTAGE OF PATIENTS
GRADE 1	0	0.00%
GRADE 2	10	33.33%
GRADE 3	18	60.00%
GRADE 4	2	6.67%
GRADE 5	0	0.00%
TOTAL	30	100.00%

Grade of improvement between lichen planus severity scores of baseline and week 12 are compared, grade 3 improvement is seen in most patients.

In 24 patients with cutaneous lichen planus, most of the patients (70%) showed grade 3 improvement in lichen planus score. In 6 patients with oral lichen planus, all of the patients showed grade 2 improvement.



BEFORE AFTER

Figure – 1 Before And After Treatment Images

DISCUSSION:

Lichen planus is an idiopathic subacute or chronic inflammatory disease effecting the skin, mucous membranes and nails. The incidence of Lichen planus is high in the age group of 30 to 70 years of age. In this study the mean age in the group is 40 years. Male patients comprised of 53.33%, while female patients comprised of 46.67% in this study. This is in close concordance with other studies by Kachhawa et al[4] and Bangaru et al[5] and Tickoo et al[6], Singh et al[7], Raghavendra et al[8] observed a slightly higher male to female ratio.

On comparing the lichen planus severity score between baseline and week 12 in all the study subjects, Grade 2 improvement was seen in 33.33% patients, Grade 3 improvement was seen in majority with 60.0% patients and Grade 4 improvement was seen in 6.67% patients. In 24 patients with cutaneous lichen planus, grade of improvement was Grade 2 in 16.66% patients, Grade 3 is the majority with 70% patients and Grade 4 in 8.33% patients. This is in accordance to study by Hazra SC et al[10] study. In this study 47.6% participants in study were cured of the disease. In Gamal Alsakaan NA et al[11] study, 55% of patients showed excellent improvement, 25% showed good improvement and 20% showed partial improvement. Both the results are similar to our study. In 6 patients with oral lichen planus, all the patients showed grade 2 improvement, which is consistent with the study conducted by Ilyas S et al[13].

Methotrexate is beneficial in treatment of lichen planus through down-regulation of immunologically mediated mucosal response. Its efficacy may also be related to its effect on epidermal cell proliferation[9]. In this study the efficacy of drug is graded by the improvement in the lichen planus severity score. This study is done with methotrexate monotherapy which helps in knowing its efficacy in lichen planus, the side effect profile can be studied and the study subject group is larger compared to previous studies.

CONCLUSIONS

Methotrexate monotherapy, though a safe treatment option, did not produce adequate arrest in disease progression till 3-6 weeks. After which it lowered the Lichen Planus severity score within 12 weeks of study period in cutaneous Lichen Planus. It was not so effective in treatment of oral Lichen Planus and may require longer duration of treatment and multiple modalities of treatment.

REFERENCES:

[1] Le Cleach L, Chosidow O. Lichen planus. New England Journal of Medicine. 2012 Feb 23;366(8):723-32.

[2] Roopashree MR, Gondhalekar RV, Shashikanth MC, George J, Thippeswamy SH, Shukla A. Pathogenesis of oral lichen planus–a review. Journal of Oral Pathology & Medicine. 2010 Nov;39(10):729-34.

[3] Jeffrey P. Callen And Carol L. Kulp-Shorten , Methotrexate , In:Wolverton SE, Wu JJ. Comprehensive dermatologic drug therapy. Elsevier Health Sciences; 2019 Dec 14.p.156

[4] Kachhawa D, Kachhawa V, Kalla G, Gupta LP. A clinico-aetiological profile of 375 cases of lichen planus. Indian Journal of Dermatology Venereology and Leprology. 1995 Sep 1;61:276- 9.

[5] Bangaru H, Karibasappa NA. Clinical and Histopathological study of 50 cases of lichen planus. Indian journal of Clinical and Experimental dermatology. 2016 Jan;2(1):36-9.

[6] Tickoo U, Bubna AK, Subramanyam S, Veeraraghavan M, Rangarajan S, Sankarasubramanian A. A clinicopathologic study of lichen planus at a tertiary health care centre in south India. Pigment International. 2016 Jul 1;3(2):96.

[7] Singh OP, Kanwar AJ. Lichen planus in India: An appraisal of 441 cases. International journal of dermatology. 1976 Dec;15(10):752-6.

[8] Raghavendra BN, SK JB. Clinico-histopathological features of lichen planus-an appraisal.Perspect Med Res. 2016;4(2):34-8.

[9] Malekzad F, Saeedi M, Ayatollahi A. Low dose Methotrexate for the treatment of generalized lichen planus.

[10] Hazra SC, Choudhury AM, Khondker L, Khan SI. Comparative efficacy of methotrexate and mini pulse betamethasone in the treatment of lichen planus.

[11] Mymensingh Medical Journal: MMJ. 2013 Oct 1;22(4):787-97.

[12] Gamal Alsakaan NA, Abd-Elsalam S, Fawzy MM, Elwan NM. Efficacy and safety of oral methotrexate versus oral mini pulse betamethasone therapy in the treatment of lichen planus: a comparative study. Journal of Dermatological Treatment. 2022 Jul 30:1-8.

[13] Ilyas S, Inayat S, Khurshid K, Asad F, Rani Z, Pal SS. Efficacy and safety of methotrexate in lichen planus. Journal of Pakistan Association of Dermatologists. 2016 Nov 18;26(1):41-7.