Original Research Article

Effect and tolerability of Levamisole in the management of aphthous ulcers – A cross sectional study

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Abstract

Background: Aphthous ulcer is very common in dental and medical practice. Mouth ulcer causes significant difficulty in eating, drinking and talking. Treatment is primarily aimed by means of pain relief and the promotion of healing to reduce the duration of the disease. To this point we have evaluated the effectiveness of levamisole in the treatment of Aphthous ulcer.

Material and methods: 50 patients suffering from recurrent aphthous ulcers were included in this double blind evaluation of therapeutic efficacy of levamisole for the period of 4 months. In group-A; there were 25 patients with mean age of 28 years, were administered levamisole in a dosage 150 mg once daily for three consecutive days at the start of lesions. In group-B; 25 patients with mean age of 28 years, were given placebo in the same schedule. Each patient's response to treatment was determined by number of lesions, duration, patients self evaluation of pain through Visual Analogue Scale. At the end of every month patients were evaluated. Data was analyzed statistically by paired t – test.

Results: In Group-A levamisole treated patients; the score of pain got reduced from severe pain to moderate pain, score with significant p value (P - 0.002) and percentage of reduction (18.89). Group-B placebo given patients were compared to group-A levamisole treated patients showed in significant p value (P -0.66) and percentage reduction (7.18) in number of lesions.

Conclusion: Patients treated with levamisole showed vital decrease in number of lesions, duration and degree of pain, when compared to placebo treated patients. Therefore our study reconfirms the favorable role of levamisole in aphthous ulcer with acceptable side effects.

Key words

Aphthous ulcer, Levamisole, Visual Analogue Scale.

Introduction

Aphthous ulcer is a general medical condition frequently seen in day to day medical and dental practice. The incidence range between five to fifty percentage and aphthae accounts for 80% [1, 2]. Aphthous ulcer is characterized clinically by recurrent bouts of rounded, shallow, painful oral ulcers at intervals of a few months to a few days [3, 4]. It causes significant difficulties in eating, drinking and even talking. Three types of RAUs are described in the literature: minor, major, and hepetiform [5].

A number of extra serious systemic diseases and immune disorders may confound or contribute to aphthous-like oral ulcerations. These include, among others, HIV infection, Behcet's disease, lupus, pharyngitis, cyclic neutropenia, hematinic deficiencies, and gastrointestional disease [1, 6]. Treatment is primarily aimed at pain relief and the promotion of healing to reduce the duration, rate of recurrence of the condition. Due to this lack of knowledge about the causative factor of Aphthous ulcer, there is no solitary treatment has been established in Aphthous ulcers [3]. It is crucial to investigate a spectrum of therapies to validate a authoritative treatment approach. Levamisole is basically an anti-helminthic drug, acts as an immunosuppressant at extended dosages, and as an immuno-enhancer at small dosages and it has been used in clinical trials in the therapy of Aphthous ulcers [7-9]. Various data also recommended that levamisole might be useful in aphthous ulcers [10, 11]. To this indication we have evaluated the efficacy levamisole in the treatment of aphthous ulcers.

Materials and methods

This cross-sectional comparative study was conducted in the department General Medicine outpatient department, Madras Medical College during the period 6 months from May 2009 to October 2009. Fifty patients suffering from recurrent aphthous at least once in every month were included in this evaluation of therapeutic efficacy of levamisole. All the patients with age between 18 – 45 years, Patients excluded from the study were; women with pregnancy, patients with hypertension, diabetes and whom were on corticosteroids. IEC has approved the study protocol and patient information consent was obtained.

In this study, two groups consisting of 25 patients in each were evaluated, out for a period of 6 months in a double blind style. Each patient took the supplied medication at the onset of each recurrence of their aphthous lesions. They were examined and evaluated at each recurrence of their lesions. Levamisole was administered per oral as a single dosage of 150mg daily for 5 days. Placebo pills that were identical in appearance, supplied to other group patients in the same schedule.

In group-A; there were 25 patients with mean age of 28 years, were administered Levamisole in a dosage 150 mg once daily for three consecutive days at the start of lesions, for a period of 4 months. In group - B; 25 patients with mean age of 28 years, were given placebo in the same schedule of group - A. The study evaluation was done from day one as per the protocol. Each patient's response to treatment was determined number of healing lesions, duration; patients pain self evaluation through VAS. At the end of the study, clinical assessment was performed and recorded. Data was analyzed statistically by using paired t – test. Implication was expressed as two tailed value.

Results

Demographic data of patients were as per **Table – 1**. The pain score in levamisole and placebo treated patients was as per **Table – 2A**. In our study based on semantic scale, the score of pain was expressed as not painful, moderate pain, sever pain. In Group-B placebo treated patients, throughout the study period decrease in pain was seen but the reduction was not statistically significant (P - 0.66) and percentage reduction (7.18). Whereas in Group-A levamisole treated patients, the score of pain got reduced from sever to moderate / not painful, score with high significant (P - 0.002) and % reduction (18.89).

Table -1: Demographic patient data

	Group-A (Levamisole)	**Group-B (Placebo)**
Gender		
Male	16	18
Female	09	07
Diagnosis of Apthus		
Major	09	22
Minor	16	03
No. of Apthus episodes month wise		
1	08	16
2	12	10
Degree of pain		
Very painful	12	10
Moderate painful	05	03
Not painful	02	01
Smoking habits		
Does not smoke	10	11
Occasional smoking	06	05
Every day smoking	05	6
Concomitant diseases		
None	05	06
Hematological	09	07
Auto immune	0	01
Allergic disorders	04	05

No. of lesions reduction in levamisole and placebo treated patients was as per **Table – 2B**. In the present study group-A levamisole treated patients showed significant (P - 0.05) and % reduction (21.05) in no. of lesions. Group-B placebo treated patients compared to group-A levamisole treated patients showed in significant (P -0.56) and percentage reduction (8.18) in no. of lesions.

Duration of Aphthous ulcer (in days) of levamisole and placebo treated patients in our study was as per **Table – 2C**. Group-A levamisole treated patients showed significant (P - 0.0018) and percentage reduction (18.75) in duration of episodes. Group-B placebo treated patients compared to group-A levamisole treated patients showed in significant (P - 0.42) and percentage reduction (1.65) in duration in days of Aphthous Stomatitis.

Discussion

There were several theories about the basis and management of apthous ulcer and various medications including antibiotics, topical corticosteroids, vitamins, and levamisole have been employed [12]. Topical anesthetics and analgesics, topical steroids in the form of cream or lotions, tetracycline suspension, medicated toothpaste with enzymes amynoglucosidase, are standard treatment in simple cases of AS [5]. Levamisole is basically an anti-helminthic drug also acts apparently as an immunosuppressant at prolonged dosages, and as an immuno-enhancer at lower dosages in the therapy of AS [7-9]. The standard dose of levamisole was 150 mg per day in every part of studies, but the duration of treatment varied from 5 consecutive days per episode to 11 consecutive days followed by 11 days of levamisole [13, 14]. Our results also correlating with Padmaja Bathina, et al. study levamisole role in Recurrent Aphthous Stomatitis in Andhra Pradesh [15].

Conclusion

Patients treated with levamisole showed vital decrease in number of lesions, duration and degree of pain, when compared to placebo treated patients. Therefore our study reconfirms the favorable role of levamisole in aphthous ulcer with negligible side effects.

Table -2A	**Levamisole**	**Placebo**	**P value**
Pain reduction	**Group-A (n - 25)**	**Group -B (n - 25)**	**(T- test)**
Before	5.6 ± 0.49	5.5 ± 0.105	P>0.05
After 1 month	5.0 ± 0.63	4.9 ± 1.02	P>0.05
After 2 month	4.2 ± 0.53	4.8 ± 1.01	P>0.05
After 3 month	3.7 ± 0.45	4.8 ± 1.01	P<0.05
After 4 month	3.4 ± 0.95	4.3 ± 0.98	P<0.05
P value	P<0.05	P>0.05	

Table -2B	**Levamisole**	**Placebo**	**P value**
Number of lesions (reduction)	**Group A (n - 25)**	**Group B (n - 25)**	**(T- test)**
Before	5.32 ± 0.39	4.64 ± 0.42	P>0.05
After 1 month	4.75 ± 0.37	4.33 ± 0.75	P<0.05
After 2 month	3.75 ± 0.44	4.29 ± 0.95	P<0.05
After 3 month	3.00 ± 0.55	4.14 ± 1.01	P<0.05
After 4 month	2.70 ± 0.52	4.00 ± 0.65	P<0.05
P value	P<0.05	P>0.05	

Table -2C	**Levamisole**	**Placebo**	**P value**
Duration of A. ulcer (days)	**Group A (n - 25)**	**Group B (n - 25)**	**(T- test)**
Before	4.75 ± 0.32	4.54 ± 0.32	P>0.05
After 1 month	4.65 ± 1.01	3.40 ± 0.75	P>0.05
After 2 month	4.05 ± 0.75	3.25 ± 0.65	P>0.05
After 3 month	3.90 ± 0.25	3.15 ± 0.75	P<0.05
After 4 month	2.65 ± 0.65	3.00 ± 0.69	P<0.05
P value	P<0.05	P>0.05	

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