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Original Article

Comparative analysis of Therapeutic Efficacy of Curcumin & Triamcinolone Acetonide in Recurrent Aphthous Stomatitis - A Clinical Study

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ABSTRACT:

Background: Recurrent aphthous stomatitis (RAS), commonly known as aphthous ulcer, is an unfortunately most common disease occurring in oral cavity. The present study was conducted to compare curcumin with triamcinolone acetonide in management of RAS.

Materials & Methods: The present study comprised of 40 patients of both genders. All were divided into 2 groups of 20 patients each. Group I was prescribed curcumin gel and group II was prescribed triamcinolone acetonide gel for three times daily for 7 days. Size of the ulcers and pain was recorded using VAS. **Results:** Group I and group II had 10 males and 10 females each. The difference was non-significant ($P < 0.05$). In group I & II, pain score was 4.5 ± 1.2 . On day 4, in group I was 4.0 ± 1.1 and in group II was 3.9 ± 1.0 and on day 7, in group I was 2.3 ± 0.6 and in group II was 2.2 ± 0.8 . The difference was non-significant ($P > 0.05$). On day 0, in group I number of ulcers was 1.5 ± 1.2 and in group II was 1.4 ± 1.0 . On 4th day, it was 0.05 ± 0.1 and in group II was 0.09 ± 0.2 . On 7th day, it was 0 in both groups. The difference was non-significant ($P > 0.05$). **Conclusion:** Curcumin and triamcinolone acetonide found equally effective in management of RAS. Therefore both can be used safely in patients with RAS.

Key words: Curcumin, RAS, triamcinolone acetonide.

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INTRODUCTION

Recurrent aphthous stomatitis (RAS), commonly known as aphthous ulcer, is an unfortunately most common disease occurring in oral cavity. It is characterized by the development of painful, recurring solitary, or multiple ulcers in the oral cavity and upper throat. The ulcers are usually multiple, small, round, or ovoid, with circumscribed margins, having yellow or gray floors and are surrounded by erythematous haloes.¹

It has been demonstrated that irregularity in cellular immunity plays the main role in the pathogenesis of RAS; therefore, immunosuppressive and immunomodulator agents have been used in the management of patients with major or recurring aphthous ulcers. Positive effects of corticosteroids in reducing the pain and burning sensation and the number of ulcers have been shown in several

studies. Proposed mechanisms of action of corticosteroids include suppression of granulocyte migration to the site of tissue injury, phagocytosis, prostaglandin and leukotriene synthesis and the cellular immunity.²

RAS is classified into 3 types:³

1. Minor RAS is also known as Miculiz's aphthae. Ulcers are usually less than 1 cm in size. Ulcers heal within 10-14 days without scarring.
2. Major RAS is also known as periadenitis mucosa necrotica recurrens or Sutton's disease. Ulcers exceed 1 cm in diameter. The ulcers persist for up to 6 weeks and heal with scarring.
3. Herpetiform ulceration is characterized by recurrent crops of multiple ulcers; may be up to 100 in number. These are small in size, measure 2-3 mm in diameter. Lesions may

coalesce to form large irregular ulcers. These ulcers last for about 10-14 days.

Curcumin is a main pigment of principle spice in India, turmeric. It is bright yellow in color and is known from centuries for its strong antioxidant, antiseptic, antibacterial, anti-inflammatory, immunomodulatory, and analgesic properties. The anti-inflammatory properties of curcumin may be attributed to its ability to inhibit both biosynthesis of inflammatory prostaglandins which further blocks cyclooxygenase and lipooxygenase activity, thereby inhibiting prostaglandin leukotriene release and neutrophil function during inflammatory states.⁴ The present study was conducted to compare curcumin with triamcinolone acetonide in management of RAS.

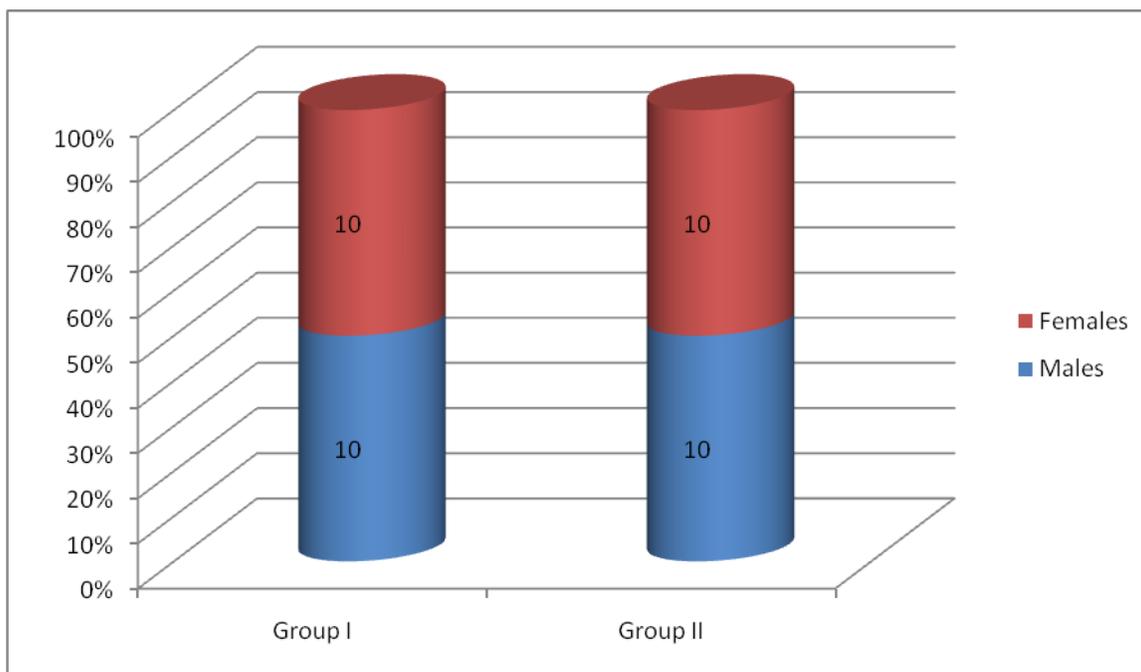
MATERIALS & METHODS

The present study comprised of 40 patients of both genders. All were informed regarding the study and written consent was obtained. Ethical clearance was obtained prior to the study.

General information such as name, age, gender etc. was recorded. All were divided into 2 groups of 20 patients each. Group I was prescribed curcumin gel and group II was prescribed triamcinolone acetonide gel for three times daily for 7 days. Size of the ulcers and pain was recorded using VAS. Results thus obtained were subjected to statistical analysis using chi- square test. P value less than 0.05 was considered significant.

RESULTS

Graph I Distribution of patients



Graph I shows that both groups, group I and group II had 10 males and 10 females each. The difference was non-significant (P< 0.05).

Table I Comparison of pain score

Day	Group I	Group II	P value
0	4.5± 1.2	4.5± 1.2	0.1
4	4.0± 1.1	3.9± 1.0	0.5
7	2.3± 0.6	2.2± 0.8	0.1

Table I shows that in group I & II, pain score was 4.5± 1.2. On day 4, in group I was 4.0± 1.1 and in group II was 3.9± 1.0 and on day 7, in group I was 2.3± 0.6 and in group II was 2.2± 0.8. The difference was non- significant (P> 0.05).

Table II Comparison of number of ulcers

Day	Group I	Group II	P value
0	1.5± 1.2	1.4± 1.0	0.1
4	0.05± 0.1	0.09± 0.2	0.1
7	0 ± 0	0± 0	1

Table II shows that on day 0, in group I number of ulcers were 1.5± 1.2 and in group II was 1.4± 1.0. On 4th day, it was 0.05± 0.1 and in group II was 0.09± 0.2. On 7th day, it was 0 in both groups. The difference was non- significant (P> 0.05).

DISCUSSION

RAS is a multifactorial disease which can occur due to bacterial infections like infection with *Streptococcus sanguis*, immunologic abnormalities, nutritional deficiencies like iron, vitamin B12, folic acid deficiency, and certain precipitating factors like trauma, endocrine conditions, psychic, and allergic factors. Although the lesion is usually self-limited, its painful presentation, high frequency of occurrence, and multifactorial etiology leads to decreased quality of life and significant morbidity. So an efficient therapeutic strategy is needed to provide relief to the patients.⁵

In present study, group I (20) was prescribed curcumin gel and group II (20) was prescribed triamcinolone acetonide gel. In a double-blind randomized clinical trial by Atessa et al⁶, 34 patients with RAS were randomly divided into two groups for treatment with prednisolone or colchicine. All patients took the medication for three months and were assessed at two weeks intervals. The groups were compared for size and number of lesions, severity of pain and burning sensation, duration of pain-free episodes and any side effects of the prescribed medicines. Both colchicine and prednisolone treatments significantly reduced RAS (p<0.001). No significant differences in size and number of lesions, recurrence and severity of pain and duration of pain-free period were seen between the two treatment groups. Colchicine (52.9%) had significantly more side effects than prednisolone (11.8%).

Proposed mechanisms of action of triamcinolone acetonide include suppression of granulocyte migration to the site of tissue injury, phagocytosis, prostaglandin and leukotriene synthesis and the cellular immunity. The anti-inflammatory action of colchicine is caused by the binding to microtubular protein and suppressing the migration and phagocytosis of leukocytes, and the generation of leukotriene B4 and lactic acid products.⁷ Manifer et al⁸, in a randomized placebo controlled trial using 2% curcumin gel in treatment of minor RAS showed that it is a well-tolerated effective antibacterial, anti-tumor agent with potent anti-inflammatory and analgesic properties.

The main approach prior to treatment of RAS is to determine the probable etiologic factors. As the exact pathogenesis of RAS still remains unknown, none of the proposed treatments have shown satisfying results. Nowadays, systemic administration of prednisolone and cyclosporine is considered for the aphthous ulcers which are

refractory to common conservative treatments. In fact, there is no consensus on an effective treatment for RAS that can efficiently reduce the signs and symptoms of the disease at a low daily dose and with minimal effects.⁹

We found that in group I & II, pain score was 4.5± 1.2. On day 4, in group I was 4.0± 1.1 and in group II was 3.9± 1.0 and on day 7, in group I was 2.3± 0.6 and in group II was 2.2± 0.8. On day 0, in group I number of ulcers was 1.5± 1.2 and in group II was 1.4± 1.0. On 4th day, it was 0.05± 0.1 and in group II was 0.09± 0.2. On 7th day, it was 0 in both groups. This is similar to Mittal et al.¹⁰

CONCLUSION

Curcumin and triamcinolone acetonide found equally effective in management of RAS. Therefore both can be used safely in patients with RAS.

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