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Consumption of Yogurt, Aloe-vera pulp and Holy Basil leaves to reduce the recurrence of aphthous mouth ulcers in night shift workers

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Abstract

Daily consumption of diet containing natural probiotics and antioxidants can reduce the symptoms of aphthous ulcers and frequent medications for it in night shift workers. 40 known patients of recurrent aphthous mouth ulcers were voluntarily participated in the present study that aimed to reduce their recurrence by regular consumption of 5 tablespoons of yogurt, 1 tablespoon of Aloe-vera pulp and 5 leaves of Holy basil leaves per day for 3 weeks. Frequency of symptoms before the commencement of study and after 3 weeks of consumption of yogurt, aloe-vera and Holy basil leaves and then after every week for next four weeks were analysed by "Z test of proportion. It was observed that the recurrence of aphthous ulcers were decreased significantly in 29 patients out of 40 after 3 weeks of daily consumption of Yogurt, Aloe-Vera pulp and Holy Basil leaves, 27 patients after two weeks of follow up, 26 patients after another two weeks of follow up. It revealed that consumption of Yogurt, Aloe-vera pulp and Holy basil leaves can reduce the recurrence of aphthous ulcers in night shift workers.

Keywords: Aphthous night workers Yogurt Aloe Basil

1. Introduction

Night shift workers are more prone for aphthous ulcer presented as recurrent, multiple, small, round, or ovoid, benign & non-contagious ulcers, with circumscribed margins, having yellow or grey floors and are surrounded by erythematous haloes for 7-10 days and heal completely between attacks [3, 5, 9, 11, 13]. Most of them appear on the non-keratinizing epithelial surfaces in the mouth including oral mucosa, tongue, etc. They are manifested as pain, interfering with eating, drinking and talking, weight loss due to malnutrition and even bleeding in severe cases. These symptoms succumb them for frequent medications, work abstinence and poor quality of daily life [17, 22].

The cause is not completely understood, but involves a T cell mediated immune response triggered by a variety of factors including sleep deprivation, stress induced hormonal imbalance, impaired thermal regulation, nutritional deficiencies, indigestion, constipation, etc. [3, 12, 21, 22].

General management is not satisfactory and includes analgesics, Vitamin B complexes, steroids and local anaesthetic oral mouth paints during attacks [12].

The present study aimed to reduce the recurrence of aphthous ulcers in night shift workers by consumption of natural probiotics and antioxidants like yogurt, Aloe-vera pulp and holy Basil leaves.

2. Aims and Objectives: To reduce the recurrence of aphthous ulcers in night shift workers by daily consumption of Yogurt, Aloe-vera pulp and Holy Basil leaves for three weeks.

3. Methodology: 40 known patients (night shift workers) of recurrent aphthous mouth ulcers attending evening OPD were informed about the purpose of present study. After getting their informed consent, their particulars including name, age, occupation & socioeconomic status, present history of symptoms and relevant past history were entered in Case sheet. Personal history including detailed food and water drinking and bowel habits, night shifts, sleep, addiction and medication was also noted.

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Inclusion criteria: Night shift workers between 30-60 years having recurrent aphthous mouth ulcers who stopped taking any specific drug for it for last 30 days and/or more.

Exclusion criteria: Children and pregnant women, known patients with any serious illness.

All the volunteered subjects were educated about the importance of natural probiotics and antioxidants for reducing the recurrence of aphthous ulcers in simple and comprehensive language. They were suggested to consume 5 tablespoons of fresh yogurt, 5 leaves of Holy basil daily (to be chewed for 5-10 minutes) and 1 tablespoon of Aloe-Vera pulp to be applied and then swallowed in the morning daily for 3 weeks. Their difficulties were solved during follow up visits. After 3 weeks of daily consumption of

Yogurt, Aloe-Vera pulp and Holy Basil leaves and then after every two weeks twice, recurrence of aphthous ulcers were reviewed.

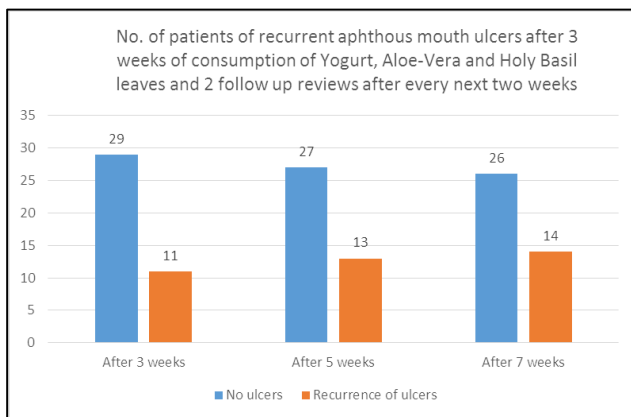
The data was analysed by Z test of proportion with probability (p) value of ≤ 0.05 was taken as significant.

4. Observations and Results

After analysis it was observed that the recurrence of aphthous ulcers were decreased significantly in 29 patients out of 40 with z score of 9.08 after 3 weeks of daily consumption of Yogurt, Aloe-Vera pulp and Holy Basil leaves, 27 patients out of 40 with z score of 8.17 after two weeks of follow up, 26 patients out of 40 with z score of 7.56 after another two weeks of follow up (Table no.1 & Bar Diagram no.1)

Table 1: with n=40

	After 3 weeks	After 5 weeks	After 7 weeks
No ulcers	29	27	26
Recurrence of ulcers	11	13	14
z score	9.08	8.17	7.56



Bar Diagram 1

4. Discussion

Yogurt is a fermented milk product that is soured and thickened by adding specific lactic acid-producing cultures to milk. The basic probiotics used to make yogurt are *Lactobacillus bulgaricus* and *Streptococcus thermophiles* which improve intestinal microbial flora that provide local mucosal immunity, improve immune function by competitive inhibition, modulate inflammatory and hypersensitivity responses by regulating cytokine functions that prevent development of autoimmune disorders like inflammatory bowel disease & irritable bowel syndrome and facilitate production of Vit B12, Folic Acid & Vit K production [1, 6, 14, 15, 20].

Mansoor *et al.* [8] conducted a study on 90 subjects to evaluate the clinical efficacy of natural oral muco-adhesive Aloe and myrrh gels. It was concluded that Aloe vera was superior in decreasing ulcer size, erythema, and exudation and ulcer healing in 6 days without any side effects.

Study conducted by Felly *et al.* [4] concluded that topical application of aloe vera is effective for aphthous stomatitis, genital herpes, psoriasis, human papilloma virus, seborrheic dermatitis, xerosis, lichen planus, frostbite, burn, wound healing and inflammation. Similar study by Nair *et al.* [10] showed the effectiveness of Aloe vera in treatment of oral lichen planus, submucous fibrosis, radiation induced mucositis, candida associated denture stomatitis, xerostomia

and recurrent aphthous stomatitis. Study conducted by Sahebjee *et al.* [10] on 40 patients also revealed effectiveness of 2% Aloe vera oral gel in decreasing the recurrent aphthous stomatitis patients' pain score and wound size and also decreases the aphthous wound healing period. Study by Dharmania *et al.* [2] showed that *Ocimum sanctum* (Tulsi) at a dose of 100 mg/kg was found to be effective in significantly reduction of free, total acidity and peptic activity and increased mucin secretion. Additionally, it helps to heal the ulcers within 20 days of treatment probably due to its cytoprotective effect rather than antisecretory activity reflecting potent anti-ulcerogenic and ulcer-healing properties that may be prescribed for peptic ulcer disease therapeutically.

Singh and Majumdar [18] inferred that fixed oil of *Ocimum sanctum* Labiatae was found to possess significant antiulcer activity against NSAIDs, alcohol, histamine, reserpine, serotonin and stress induced ulceration in animal models. Significant inhibition was also observed in gastric secretion and aspirin-induced gastric ulceration in pylorus ligated rats. The lipoxygenase inhibitory, histamine antagonistic and antisecretory effects of the oil could probably have contributed towards anti-inflammatory and antiulcer activity. Similar study by Surender Singh [19] concluded that *Ocimum sanctum* acts as anti-inflammatory agent which blocks cyclooxygenase and lipoxygenase pathway of arachidonic acid metabolism. Juntachote [7] also showed that at neutral and acidic pH, Holy basil extracts has high antioxidative stability. It exhibits strong superoxide anion scavenging activity, lipoxygenase inhibitor and Fe^{++} chelating activity in a concentration-dependent manner.

Tulsi is abundant in vitamin C, vitamin A, phytonutrients and essential oils making it an excellent adaptogen or antioxidant against free radicals. Its anti-bacterial properties make it an effective oral disinfectant that destroy up to 99% of mouth commensal organisms and relieve the symptoms of ulcer. Recent studies have found that Tulsi leaves chewing for 30 minutes increases salivary pH immediately suggesting that it tend to curb the acidic environment inside the mouth. Restoring and balancing the salivary pH, tulsi leaves minimizes the damage caused by extra acids, thereby curing ulcers naturally [21].

5. Conclusion

It was concluded that regular consumption of Yogurt, Aloe-vera pulp and Holy basil leaves can reduce the recurrence of aphthous ulcers in night shift workers. This can be considered as non-therapeutic prescription for treatment of recurrent aphthous ulcer.

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